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Necessary Existence



Alexander R. Pruss &
Joshua L. Rasmussen

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Contents

1. Introduction	1
1.1 The Question of Necessary Existence	1
1.2 Why Necessary Existence Matters	2
1.3 The “Necessary Being” Survey Results	6
2. Metaphysical Possibility and Necessity	11
2.1 Introduction	11
2.2 What is Metaphysical Modality?	11
2.3 Modal Logic	14
2.4 The S5 Ontological Argument and Two-dimensional Semantics	29
3. An Argument from Contingency	33
3.1 Introduction	33
3.2 The Argument from Contingency	33
3.3 On Behalf of the Premises	35
3.4 Objections	47
3.5 Concluding Assessment	66
4. An Argument from Possible Causes	69
4.1 Introduction	69
4.2 The Modal Argument from Beginnings	69
4.3 On Behalf of the Premises	72
4.4 Objections	79
4.5 Concluding Assessment	92
5. From Possible Causes II	93
5.1 Introduction	93
5.2 Restricted Causal Principles	93
5.3 The Restricted Modal Argument	99
5.4 On Behalf of the Premises	100
5.5 Objections	103
5.6 Concluding Assessment	108
6. From Modal Uniformity	110
6.1 Introduction	110
6.2 Uniformity as a Guide to Possibility	112
6.3 Restricted Modal Uniformity	115
6.4 Applications to Arguments from Contingency	119
6.5 Objection	123
6.6 Concluding Assessment	124

7. From Necessary Abstracta to Necessary Concreta	126
7.1 Introduction	126
7.2 The Main Argument	126
7.3 Necessarily There Are Abstracta	127
7.4 If There Are Abstracta, There Are Concreta	139
7.5 It's Possible for There to Be No Contingent Concrete Entities	142
7.6 Weakening the Possibility of No Concreta	146
7.7 Concluding Assessment	148
8. The Argument from Perfections	150
8.1 History and Introduction	150
8.2 The Main Argument	150
8.3 Positivity and the Formal Axioms	152
8.4 Necessary Existence is Positive	162
8.5 Being Capable of Causing is Positive	164
8.6 Doing Without Properties	165
8.7 Theism and the Problem of Evil	166
8.8 Oppy's Parody	169
8.9 Concluding Assessment	171
9. Arguments against a Necessary Being	173
9.1 Introduction	173
9.2 The Argument from Conceivability	173
9.3 The Semantic Problem	179
9.4 The Logic Argument	182
9.5 The Subtraction Argument	184
9.6 Problems with Causation	189
9.7 The Costly Addition	191
9.8 Concluding Assessment	194
<i>Appendix: A Slew of Arguments</i>	195
<i>Bibliography</i>	209
<i>Index</i>	217

1

Introduction

People have at all times been talking of an *absolutely necessary* Being.

—Immanuel Kant¹.

1.1 The Question of Necessary Existence

Virtually everything we encounter in ordinary experience can, apparently, fail to exist. Cars, iPads, telephone poles, towers, flowers, mittens, kittens, bricks, sticks, planets, stars, dust: none of these things *have to* exist, it seems. We can easily imagine a universe without such things; and there was a time before anything of this sort existed. It seems the things with which we are familiar are *contingent*—i.e., possibly absent.²

Is everything contingent? Or, might there also be one or more things that exist *of necessity*? A necessary thing, as we are thinking of it, would be something that exists no matter what possible situation obtains. Its non-existence at any time would be impossible in the strongest sense. So, for example, a necessary thing cannot be assembled or disassembled. It cannot snap into being or snap out of being. It cannot *not* exist—no matter what. Is there anything like that?

¹ Kant and Müller 1907.

² There is Williamson's proposal (Williamson 2001) that *everything* exists of necessity. But even Williamson allows for contingency in the world. He says it is contingent, for instance, whether a given physical thing is physical (pp. 12–13). And in general, where one might ordinarily say that objects pass in and out of existence, Williamson will say they pass in and out of a certain basic category of being (a category he calls 'concrete,' which is to be distinguished from the category of causally-capable things, which we call 'concrete'). Someone in Williamson's shoes could wonder, therefore, whether anything is necessarily on the side of this basic category which they are currently on. Many of the questions and arguments we raise have parallels in the Williamson setting, and we leave working out these parallels to the interested reader.

In this book, we are primarily interested in the prospect of a necessary *concrete* thing, which we take to be anything capable of causation. We intend to use the term ‘cause’ in a minimal sense to designate anything that acts as an antecedent condition (or entity) that is at least partially causally responsible for some event. Causes need not be sufficient for their effects: for instance, we could say that *Adam’s smoking* caused *Adam’s lung cancer*, even though his smoking didn’t *have to* cause lung cancer. Also, we allow substances to be causes, even if ‘substance causation’ is to be analyzed in terms of ‘event causation.’³ In general, we take no sides on what sorts of things can be causes; we leave it open, for instance, whether numbers, properties, propositions, sets and other so-called ‘abstract’ entities may have causal powers and so also count as ‘concrete’ in our stipulated sense. Our question, then, is this: is there anything that (i) possibly causes something (is *concrete* in our sense) and (ii) exists no matter what? In keeping with tradition, we will call anything that satisfies both (i) and (ii) a ‘necessary being.’ We inquire: are there any necessary beings?

We will set out a case for an affirmative answer. We will lay the groundwork in Chapter 2, where we motivate a standard logic of the *necessary* and the *possible*. Then, over the course of six chapters, we will present six arguments for the existence of a necessary being. The first argument is an up-to-date defense of a traditional explanation-based argument from contingency. The next five arguments are new possibility-based arguments which make use of twentieth-century advances in the logic of necessity. We aim to present the arguments as possible pathways to an intriguing and far-reaching conclusion. In the final chapter, we will address what we take to be the most challenging objections to the existence of necessary beings. Finally, in an appendix, we will offer a number of additional arguments for a necessary being, without detailed discussion, in the hope of inspiring further inquiry.

1.2 Why Necessary Existence Matters

The question of necessary existence is relevant to several fields of inquiry, including cosmology, ontology, and theology. Start with cosmology. Many

³ So, for example, one might analyze ‘John caused the fight’ as ‘John’s rude comments caused the fight.’

physicists and cosmologists are extremely interested in questions about ultimate explanations. Stephen Hawking states that his goal as a physicist is “a complete understanding of the universe, why it is as it is and why it exists at all” (Boslough, 1989, p. 77). Echoing a similar sentiment, cosmologist Sean Carroll writes, “We are looking for a complete, coherent, and simple understanding of reality” (Carroll, 2005, p. 634). Brian Greene, a theoretical physicist, asserts that an ultimate explanation of the universe “would provide the firmest foundation on which to build our understanding of the world” (Greene 1999). The search for an ultimate explanation invites a question: what kind of an explanation can be ultimate? Can contingent reality alone constitute an ultimate explanation?

Physicist and cosmologist Lawrence Krauss proposes that the ultimate foundation of contingent reality is, in a certain sense, *nothing* (Krauss 2012). His proposal is provocative. And it inspires curiosity: his state of ‘nothing’ includes laws and conditions, and one may like to know what could explain their existence. Might other laws and conditions have obtained instead? If so, then what accounts for the existence of these particular starting conditions? Why did *they* obtain? One theory is that there is no answer—no deeper explanation. But consider the alternative: a *necessary* concrete reality lies at the ultimate explanatory foundation of our universe. That’s an importantly different kind of answer relevant to cosmogony.

Suppose, for a moment, that there actually are one or more necessary beings. Call it, or them, “*N*.”⁴ Now *N* either is describable in the language of physics, or it is not. Suppose, first, that *N* has a physical description. Then the most complete cosmogonic theory would make reference to *N*. In other words, our most accurate scientific theory of the world would make reference to one or more necessary beings. That would be highly interesting to know, if it were true. Alternatively, suppose *N* cannot be described in the language of physics. In that case, even the most *complete* physical theory would fail to describe all the basic components of reality. In other words, there would be more to concrete reality than science would be capable of telling us about—even in principle. That, too, would

⁴ To handle plurality, we may either: (i) suppose ‘*N*’ refers to a mereological sum of all necessary beings, (ii) suppose ‘*N*’ refers to the totality of necessary reality in the way we might speak of ‘heaps’ or ‘holes’ without prejudging the question of whether our ontology should include these, or (iii) treat ‘*N*’ as a plural referring device.

be interesting to know, if it were true. So, if there is a necessary being, then either cosmology is incapable of revealing an ultimate explanation of reality, or cosmological theories that make no reference to a necessary being are incomplete. Either result would be of great interest.

But now suppose instead that there is no necessary being. Then perhaps Krauss' theory is right: everything came from 'nothing' (in some sense). In this case, reality has no necessary foundation: reality is contingent all the way down. Krauss' theory may be true, but *only if* things don't bottom out in necessary beings. For if necessary beings lie at the explanatory foundation of our cosmos, then contingent reality does not—and cannot—come from *nothing* (unless a necessary being could count as 'nothing'). The question of necessary existence is relevant, then, to discerning which cosmogonic theories are metaphysically possible.

Necessary existence is also relevant to ontology. The ontologist endeavors to identify the most fundamental categories of reality. She asks: "What basic kinds of things are there?" One's answer to this question provides a framework for dealing with a wide range of philosophical questions. The traditional view is that we may rightly divide reality into *concrete* things (such as substances and events) and *abstract* things (such as numbers, properties, relations, and sets). Furthermore, some philosophers think that the divide between concrete and abstract things coincides with the divide between *contingent* and *necessary* things. We may wonder, however, whether the category of concrete things could overlap the category of necessary things. Is concreteness compatible with necessary existence? The answer to that question depends upon the answer to the question of this book: are there any necessary concrete things?

The question of necessary existence is also directly relevant to the current debate over *metaphysical nihilism*—the thesis that it is metaphysically possible for there to not have been anything at all. If there is a necessary being, then metaphysical nihilism is false: an empty world is impossible.⁵ But if there isn't a necessary being, then the door to metaphysical nihilism is open.

Why care about metaphysical nihilism? One reason is that it bears on one of the deepest and longest standing questions: why is there anything at all? Metaphysical nihilism, if true, precludes what may be the simplest and

⁵ See, for example, Baldwin 1996, Lowe 2002, Paseau 2002, Rodriguez-Pereyra 2002, Cameron 2007, Efrid 2009, and Hoffmann 2011. Note that some of these subtraction arguments have the more modest conclusion that there could be no spatial things.

most straightforward answer: there is something because the alternative is impossible (see, e.g., Rundle 2004). Metaphysical nihilism rules out this answer because it implies that there actually *could* have been nothing. On the other hand, if metaphysical nihilism is false, then the simplest ultimate explanation of existence is metaphysically possible. We consider this possibility to be enormously interesting and worth investigating.

Let us consider, finally, the relevance of necessary existence to theology. Many people are quick to associate the term ‘necessary being’ with God. There is an obvious historical reason for this: arguments for a necessary being have for centuries been a backbone of natural theology. Of course, arguments for a necessary being aren’t by themselves arguments for theism. The usual theistic arguments are multi-stage arguments, where an argument for a necessary being is just an initial stage. Nontheists may resist the subsequent stages; and so they may conceive of necessary concreta in naturalistic-friendly terms. Even so, arguments for a necessary being are a venerable and foundational part of natural theology, since God has classically been conceived as a supreme and unique necessary being. So the question of necessary existence is relevant to the question of God’s existence.

To be clear, ‘necessary being’ is by no means synonymous with ‘supreme being’ or ‘God.’ Richard Swinburne, for instance, thinks God is a contingent being. And, as we have already suggested, one might conceive of a necessary being in nontheistic terms. Smith (2001), for example, has proposed that the necessary being is a timeless *point* that acts as a causal condition for our cosmos. We should distinguish, therefore, between a necessary being and a supreme being. Arguments for or against the one are not automatically arguments for or against the other.

Nevertheless, sound arguments for or against a necessary being would significantly impact theology. Suppose Swinburne, for example, were persuaded that there is a necessary being. Would he continue to think God is contingent? Probably not. After all, God is supposed to be the ultimate source of all other concrete entities in every world where God exists. So, if God exists and there is a necessary being (that is, a necessary concrete thing), then in every world where God exists, either God is identical with that necessary being or God is that necessary being’s cause. But if God is identical with that necessary being, then God is a necessary being, after all. And surely if God is the *cause* of a necessary being, then God is also a necessary being. It seems, then, that a sound argument for a necessary being would provide a reason to think that *if* there is

a supreme being, it is a necessary being. Moreover, a sound argument *against* the existence of a necessary being would provide a reason to think that the classical concept of God as necessarily existent has no application to reality. These are significant theological results.

1.3 The “Necessary Being” Survey Results

Can arguments for a necessary being actually persuade people? It is commonly thought that philosophical arguments, especially those concerning *ultimate* causes, do little more than reinforce the beliefs of those who already have convictions on the matter. But could there be arguments for a necessary being whose premises are plausible to those who don’t *already* think there is a necessary being? If not, what value is there in this inquiry? Is it possible to make genuine progress on a topic like this?

In view of such questions, we conducted an informal experiment to estimate the intuitive appeal of various arguments for a necessary being. The experiment consists of an online, interactive survey located here: www.necessarybeing.com.⁶ The survey begins by supplying links to key definitions, including a definition of the crucial term, ‘necessary being.’ The survey follows with a series of questions about premises in several arguments for a necessary being. The first question is: “Is there a Necessary Being?” The choices for each question are “it seems so,” “it seems not,” and “I can’t say.” The survey is interactive in that subsequent questions depend upon answers.

We implemented a program that analyzes the participants’ answers. Some sets of answers correspond to premises in a deductively valid argument for a necessary being. As soon as a participant reports answers that belong to a set of such premises, then that participant is taken to a ‘proof’ page that shows how to deduce the existence of a necessary being from the reported answers. If a participant never reports such answers, they are taken to a more mundane ‘thank you’ page. In either case, participants are then invited to report whether they are a philosopher and/or a professor of philosophy.⁷

⁶ It was previously located at www.necessarybeing.net.

⁷ We posted the link to our survey on *Prosblogion* and *Matters of Substance* blogs. We didn’t screen anyone who took the quiz. We simply recorded the results from anyone who completed the quiz within a prespecified time frame.

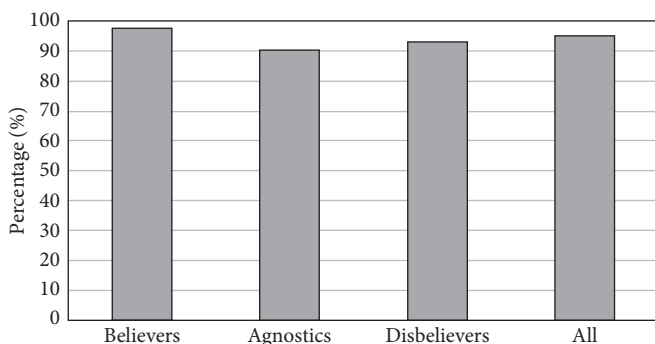


Figure 1 Percentage of participants whose responses entail the existence of a necessary being.

Our goal was to investigate whether anyone who doesn't already believe in a necessary being might accept premises that jointly entail that there is a necessary being. If there are such people, we also want to know whether they are few and far between.

We will now give the results of our survey. The results are based upon the answers of 2,322 participants. These participants comprise all those participants who took the quiz for the first time between August 15, 2012 and April 15, 2013. About half of them (49.9%) responded "it seems so" to the question "Is there a Necessary Being?" Call these 'believers.' 21.8% reported "it seems not" (disbelievers), and 28.3% reported "I can't say" (agnostics).

So what percentage of participants reported answers that comprise the premises of an argument for a necessary being? The overall answer (including believers and non-believers alike) is 94.8%. Among *disbelievers*, the percentage is not much lower: 93.1%. Figure 1 is a breakdown of the percentages of believers, agnostics, and disbelievers who reached a 'proof' page.⁸

We can see that believers were the most likely to reach a 'proof' page. No surprise there. Interestingly, the disbelievers were slightly more likely to reach a 'proof' page than the agnostics. Perhaps this is because agnostics tend to be more reserved in their epistemological inquiries,

⁸ The results were fairly stable over time. We calculated a standard deviation of 0.88% for month-to-month variation.

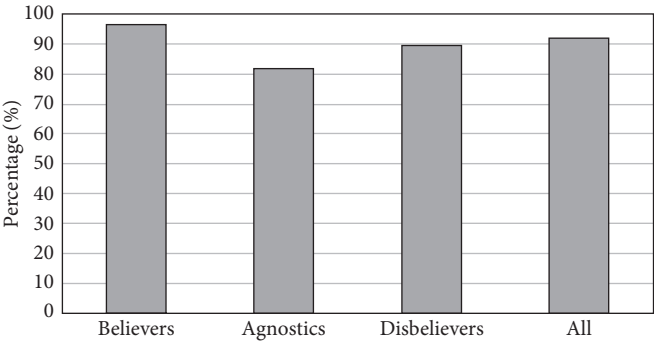


Figure 2 Percentage of philosophers whose responses entail the existence of a necessary being.

leading them to report “I can’t say” for many of the responses that would otherwise lead to a ‘proof’ page for a necessary being.

We also tabulated results for the 446 participants each of whom reported to be a *philosopher*. Those results are shown in Figure 2.

We see that philosophers were slightly more skeptical than the broader population, but not by much.

The chart in Figure 3 summarizes the results for the foregoing categories of participants, plus the 46 philosophers who reported that they were professors. We see that the professors were the most likely

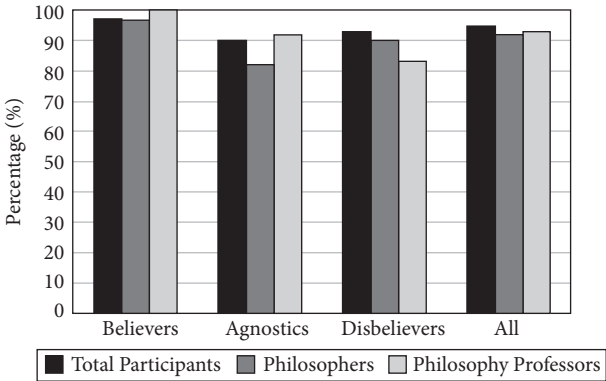


Figure 3 Response summary.

to give reports that are consistent with their belief or disbelief in a necessary being.

These results support the hypothesis that there are skeptics of a necessary being who are inclined to accept, on initial review at least, premises that jointly entail that there is at least one necessary concrete thing. Moreover, we have confirming anecdotal evidence: a few participants e-mailed us to report that they were persuaded by the ‘proof’ page to think that there is a necessary being. This result is especially interesting because the survey does not offer independent support or motivation for any of the premises (as we will do in the case of the premises in the arguments to come, aside from those in the appendix).

We should highlight a few disclaimers. First, the survey does not test intuitions regarding any argument *against* a necessary being. Someone who finds plausible premises in an argument for a necessary being may *also* find plausible premises in an argument against a necessary being. Thus, the quiz does not test the participants’ rationality: disbelievers may be rationally inclined to consider certain premises as *prima facie* plausible, even if those premises jointly entail that there is a necessary being. In fact, the survey results could help some participants better understand why they rationally ought not accept a premise they had found *prima facie* plausible.

Second, the presentation of the proofs is semi-formal. We worked hard to clearly define all the key terms so that there would be no questions about whether the proofs are logically valid. Moreover, several professional philosophers critically reviewed the proofs before we conducted the survey. Nevertheless, we can’t promise that no one may interpret a line in a way that leads to a question about the arguments’ validity. It is worth noting that during an initial trial period (before August 15, 2012) a few participants reported ambiguities in certain proofs. In light of those reports, we made adjustments to eliminate ambiguities. Fortunately, no ambiguities affecting validity were reported during the experimental period. Although we take each of the proofs to be deductively valid, we do not claim that there cannot be any debate over how to interpret the formal features of a particular proof.

Third, the survey contains *multiple* arguments for a necessary being. We haven’t tested how likely it is that participants will accept the premises of any one particular argument. Rather, we have tested the likelihood that

they will accept the premises of at least one from a number of interrelated arguments.

We understand that the results of the survey are open to various interpretations. One thing is clear, however: there are unexplored and underexplored arguments for a necessary being. Therefore, we offer our book as a resource for studying and investigating new arguments for a necessary being.

2

Metaphysical Possibility and Necessity

2.1 Introduction

It is metaphysically possible for there to be golden mountains, dog-headed humanoids, and violations of mass-energy conservation. It is metaphysically necessary that there be infinitely many primes and that every cat have DNA. And it is metaphysically impossible for there to be square circles, married bachelors or self-caused beings. Moreover, it is either metaphysically necessary or metaphysically impossible for the 10^{100} th digit of π to be even, though no one has any idea which it is.

The last example emphasizes that the modality here is not epistemic. To say that a proposition is metaphysically necessary is not to say that our evidence requires us to believe it, and to say that it is metaphysically possible is not to say that our evidence allows for it.

In this chapter, we will distinguish metaphysical modality from narrowly logical modality and then argue that metaphysical modality is governed by the axioms of the system S5. We will then briefly discuss how two-dimensionalists' notions of conceptual necessity and possibility would also suffice for our purposes.

We shall use \Box and \Diamond for metaphysical necessity and possibility, respectively. In this chapter we will have some occasion to discuss impossible worlds. In other chapters, the word 'world' will be used only for *possible* worlds.

2.2 What is Metaphysical Modality?

Famously, Findlay (1948) argued that for any being, it is logically possible that that being not exist, and hence a necessary being is a

self-contradiction.¹ If Findlay is right, then the arguments of this book are doomed to failure. Findlay's line of thought was dependent on seeing necessity as something like what one might call 'narrowly logical necessity' (though even so his arguments may not have been successful).

Instead, the modality we are talking about in this book is what is sometimes called "broadly logical" necessity and possibility (see, e.g., Plantinga 1974). It needs to be distinguished from "narrowly logical" notions. Narrowly logical notions of modality arise naturally from the thought that impossibility is self-contradiction. Formally, given a logical system L , we can get a notion of L -necessity as provability in L and L -possibility as non-disprovability (or "non-self-contradiction") in L . For this notion to be useful, it seems we need a set of axioms for L that is finite or at least recursively specifiable.²

However, we will get important modal facts wrong if we reduce modality to this narrow-logical notion. Here are three reasons to think so. First, we need additional *non-formal* axioms about natural kinds (including, perhaps, natural kinds that are not exemplified in our world) in order to capture such necessities as that cats contain DNA, that water is material, or that acute thinkers aren't acute angles. Second, it is plausible that true arithmetical claims are necessary even while Gödel's First Incompleteness Theorem entails that they are not all L -necessary (Pruss 2011, Section I.2). Third, and perhaps most convincingly, Gödel's Second Incompleteness Theorem, together with the highly plausible premise that self-contradictions can't be *necessary*, implies that necessity isn't reducible to provability.

We will elaborate on this third reason for those interested in the technical details. Those not interested in these technical details are invited

¹ Cf. Swinburne 2012.

² Consider two alternatives. First, suppose we leave unspecified what the axioms are. Then the theory is compatible with every other serious theory of modality. That's because the proponent of some theory T of modality could just specify L 's axioms to be all the propositions that are necessarily true according to T , and every serious theory of modality agrees that everything that logically follows from necessities is necessary. Alternatively, suppose we instead say that axiomatizability is a primitive notion. Then the theory has no advantage over the theory that necessity is a primitive notion: it replaces a mysterious modal notion of necessity with what is on its face an even more mysterious modal notion, that of being objectively an axiom. Perhaps, though, there is some useful way of specifying axioms that is not recursive in nature. If so, then that theory would need to be examined separately, and we leave that option for future study.

to skip ahead. The Second Incompleteness Theorem tells us that if L is a consistent system with recursively specifiable axioms and sufficiently many uncontroversial axioms of arithmetic, then one cannot prove L 's consistency in L . Suppose L is such a consistent system. In the interest of readability, our argument for the inadequacy of L -modality will be very quickly sketched, without careful distinctions between formulas and their Gödel numbers. Here it goes. Let \Box_L and \Diamond_L be L -necessity and L -possibility, respectively. Fix *any* sentence p . It follows from Gödel's Second Incompleteness Theorem (Boolos and Jeffrey 1995, p. 188) that there is no L -proof of L 's consistency. Now, one can L -prove that if L is inconsistent (i.e., if a self-contradiction can be L -proved), then one can L -prove p , just by running in L one of the standard proofs that everything follows from a self-contradiction. Hence, one can L -prove that if L is inconsistent, then $\Box_L p$ (i.e., p has an L -proof). Hence, using contraposition, if one could L -prove $\sim \Box_L p$, one could L -prove that L is consistent. By Second Incompleteness, however, one cannot L -prove that L is consistent, and so one cannot L -prove $\sim \Box_L p$. Thus, $\sim \Box_L \sim \Box_L p$, and it follows that $\Diamond_L \Box_L p$.

We have just shown that L -modality makes $\Diamond_L \Box_L p$ true for every sentence p —i.e., every sentence is L -possibly L -necessary. But we do not want this to be the case for the correct notions of necessity and possibility. Suppose for instance that p is some self-contradiction, say $0 = 1$. Then, it is L -possible that p is L -necessary. But we certainly do not want to say that it is possible that it is necessary that $0 = 1$. The universal truth of $\Diamond_L \Box_L p$ shows that narrowly logical modality is untenable as an across-the-board account of modality. At best, it is an account of modality applicable to sentences without modal operators—and even then the First Incompleteness Theorem causes a problem, as we noted.

We might say that Gödel's First Incompleteness Theorem tells us that there are truths (even arithmetical ones) that are not provable, while the Second tells us that there are necessities that are not provable. Thus, narrowly logical modality understood in terms of provability gives us the wrong answers across the board: it not only leaves out modal facts about natural kinds and Gödelian arithmetical claims, but it makes $0 = 1$ be possibly necessary.

Of course, modulo some set-theoretic worries, we *can* make L -modality coextensive with metaphysical modality, if we do not require the axioms to be recursively specifiable. After all, we could just take

all metaphysically necessary truths to be axioms. But then we trivialize *L*-modality.

Metaphysical necessity and possibility are not defined in terms of provability in a formal system. What are they, then? There are many accounts on the table, and our arguments are meant to be neutral in regard to all the best accounts. For instance, one of the authors of this book favors a Platonic account, on which some propositions have a fundamental modal property like necessity or possibility (see, e.g., Plantinga 1974), while the other favors a causal-powers account, on which possibilities are grounded in the powers of existing objects (see Pruss 2011 for a discussion of both this account and a number of others). (One might even combine the two stories: perhaps the possession of a fundamental modal property could be grounded in facts about the powers of objects.) One need not figure out the grounds or nature of modality in order to acquire concepts of metaphysical modality. We acquire the concepts of necessity and possibility by ostension, as we think about examples of modal propositions, like the ones presented at the beginning of the chapter. We may then separate the relevant modal concepts from neighboring ones (like the narrowly logical ones) with which they can be confused. Thus, no definition is required for comprehension.

2.3 Modal Logic

2.3.1 Overview

The modal system S5 is the main modal system of this book. We will shortly discuss the requisite modal axioms and rules of inference. Our arguments are best formulated in a free logic, i.e., a logic where terms need not refer (Nolt 2010). In such a logic, there is an existence predicate *E!* such that *E!t* holds if and only if *t* exists, i.e., $\exists x(x = t)$. This allows a simple formulation of the claim that *x* exists necessarily: $\Box E!x$. And in the sense in which we use the term ‘necessary being’ in this book, we may characterize a necessary being as follows:

NECBEING. Entity *x* is a necessary being if and only if $\Box E!x$ & $\Diamond \exists y \text{ Causes}(x, y)$.

One also needs to avoid confusing *E!x* with the “exists uniquely” quantifier $\exists!x$.

2.3.2 *Uncontroversial Aspects*

We assume four uncontroversial rules of modal logic. First, the De Morgan equivalences between necessity and possibility: $\Diamond \sim p \Leftrightarrow \sim \Box p$ and $\sim \Diamond p \Leftrightarrow \Box \sim p$. In other words, a proposition is possible if and only if its negation is not necessary; and it is impossible if and only if its negation is necessary.

Second, one thing that the narrowly logical account of modality got right is this: if p is a theorem—i.e., has a proof (from the axioms)—then it is necessary. This leads to the Rule of Necessitation: given a proof of p from axioms alone, one may infer $\Box p$.

Third, any plausible account of metaphysical necessity will yield the Distribution Axiom: if $\Box(p \rightarrow q)$, then $\Box p \rightarrow \Box q$ (where $p \rightarrow q$ is material implication). The axiom basically states that necessity transfers across entailment: so, if p is necessary, and if p entails q , then q is necessary. (We will consistently use ' p entails q ' to mean that $\Box(p \rightarrow q)$.)

Fourth, we accept Axiom T, which states that we can move from necessity to actuality: $\Box p \rightarrow p$. By the De Morgan equivalences and contraposition, this is equivalent to the axiom that what is actual is possible: $p \rightarrow \Diamond p$. While this axiom is uncontroversial for metaphysical modality, it is certainly controversial for other kinds of modality. For instance, it is false for epistemic modality: something can be epistemically necessary (say, in the sense of being entailed by what one justifiably believes, or in the sense of having unit epistemic probability) and yet false.

2.3.3 *S4 Axiom*

2.3.3.1 VIOLATIONS

The S4 Axiom says that if p is possibly possible, then p is possible. Equivalently, if p is necessary, it is necessarily necessary.

There certainly are modalities that violate S4. We'll give two examples. First, let us say that something is practically possible for you provided that you could bring it about at a cost not exceeding c dollars. Suppose p would cost $2c$ dollars. Then it might well be the case that at a cost of c , you could make p be practically possible—for you might be only another c away from getting to p . Thus, p is practically impossible, but it is practically possible for p to be practically possible.

Second, and more seriously, say that p is nomically possible provided that p is compatible with the laws of nature. Now one of the laws of

nature in our world is that nothing moves faster than light. Imagine a world w where everything behaves as it does in our world, but it is a mere coincidence, rather than a law, that nothing moves faster than light. It is plausible that such a world could be compatible with the laws of nature of our world, since while one of the laws of nature is that nothing moves faster than light, it is not a law of nature that it is a law of nature that nothing moves faster than light. But at w , it will be true that it is nomically possible for something to move faster than light. So it appears to be nomically possible that it is nomically possible for something to move faster than light, even though it is not nomically possible for something to move faster than light.

2.3.3.2 UNCONDITIONALITY AND INVARIANCE

Metaphysical modality is different, however. Practical possibility is possibility relative to the costs, and nomic possibility is possibility relative to the laws of nature. Metaphysical possibility, by contrast, is *absolute* possibility. It is not relativized in any way. This unconditionality is why prior to Kripke (1980) it was thought by a number of philosophers that absolute possibility is identical to *narrowly* logical possibility. But we saw in Section 2.2 that narrowly logical modality is untenable as an across-the-board account of modality.

The unconditionality of metaphysical modality suggests an invariance: no matter what possible world we consider, the same propositions will be possible in that world as in the actual world. Otherwise, the possibility and necessity we're looking at are conditional on the world we're in. This invariance implies S4: if p is possible in some possible world, i.e., possibly possible, then p is possible. (It also implies the strong Axiom S5, which we will consider shortly.)

2.3.3.3 TWO ACCOUNTS OF MODALITY

We think there are two particularly plausible ways of thinking about metaphysical modality. One approach is that although we should not think of metaphysical necessity as provability in an axiomatizable system, it is plausible to see metaphysical necessities as consequences of "Basic Laws of Reality." Perhaps part of what makes the Basic Laws basic is that they hold in all possible worlds, and so what is necessary (and hence what is possible) cannot vary between worlds (cf. Plantinga 1977, p. 105). Invariance implies S4, as we just noted.

The other approach is a causal-powers-based approach on which a proposition is possible provided either that it is actual, or that something (perhaps a plurality) has the power to make it true (or that something has the power to initiate a chain of causes leading to its being true, and so on). This causal-powers approach also yields S4 (Pruss 2011).³ On both views, thus, we get S4.

2.3.3.4 WEAKNESS AND STRENGTH

Another line of thought in favor of S4 is that metaphysical possibility is the logically weakest candidate for a possibility operator that isn't objectionably *ad hoc*—metaphysical possibility is the barest kind of non-arbitrary possibility. But if S4 is false for \Diamond , then there is a weaker kind of possibility than \Diamond , namely possible possibility, $\Diamond\Diamond$. Now, one might think there is something objectionably *ad hoc* about $\Diamond\Diamond$ —why not work with $\Diamond\Diamond\Diamond$ instead? However, in the absence of S4 we can form a weaker non-arbitrary modal operator, \Diamond^* , defined as follows: \Diamond^*p if and only if there is an $n \geq 1$ such that $\Diamond^n p$, where $\Diamond^n p$ is the result of iterating the \Diamond operator n times. In fact, if \Diamond^* differs from \Diamond , then \Diamond^* seems to be the better candidate for metaphysical possibility than \Diamond . But it has been shown that \Diamond^* satisfies S4 (Pruss 2011, Appendix). Therefore, the best candidate for metaphysical modality satisfies S4.

We could also do this construction in terms of necessity. Metaphysical necessity is the strongest kind of non-arbitrary necessity, and if S4 is false for \Box , there is a stronger non-arbitrary necessity: \Box^* where \Box^*p if and only if for all $n \geq 1$ we have $\Box^n p$, where \Box^n is the n -fold iteration of \Box . And it is plain that \Box^*p if and only if $\sim \Diamond^* \sim p$.

Consider, finally, that modal logics correspond to possible worlds semantics with a binary accessibility relation, so that (i) a proposition p is necessary at a world w if and only if p holds at all worlds w' accessible from w , and (ii) p is possible at w if and only if p holds at some world w' accessible from w . Axiom S4 corresponds to the assumption that the accessibility relation is transitive: if w_2 is accessible from w_1 and w_3 is accessible from w_2 , then w_3 is accessible from w_1 . The \Diamond^* operator can be seen as naturally formed by replacing the original accessibility relation corresponding to \Diamond with its transitive closure, i.e., letting w_2 be accessible

³ But see Pruss 2016 for a technical problem with the details of the proposed account of modality in Pruss 2011.

from w_1 if and only if there is a chain $w_1 = v_1, v_2, \dots, v_n = w_2$ of worlds such that v_{i+1} is accessible from v_i by our original accessibility relation.

2.3.4 *Brouwer and S5 Axioms*

2.3.4.1 MUTUAL RECOGNITION

What is actually true is metaphysically possible. This statement follows from Axiom T. But it understates the case. The real isn't just possible. It is necessarily possible. Thus, $p \rightarrow \Box \Diamond p$, which is known as the Brouwer Axiom.

We can think of the Brouwer Axiom as an axiom of mutual recognition. If a world doesn't recognize our world as a possibility, we're not going to recognize that world as a possibility.⁴ Actualities are surely possible in the strongest available relevant⁵ sense, and so such a world's criteria of possibility are simply wrong—and a world whose modal logic is wrong is an impossible world.

2.3.4.2 INVARIANCE

The Brouwer Axiom conjoined with S4 is equivalent to the famous Axiom S5 (the characteristic axiom of system S5) that $\Diamond p \rightarrow \Box \Diamond p$.⁶ The S5 Axiom encodes the full invariance intuition from the “Basic Laws of Reality” approach to modality that already suggested S4 to us. What is possible does not vary across possible worlds. Put differently: strict compatibility with the (necessary) Basic Laws is not a contingent matter.

In terms of accessibility, Brouwer tells us that the accessibility relation is symmetric (i.e., w_2 is accessible from w_1 if and only if w_1 is accessible from w_2). Axiom T says that the accessibility relation is reflexive (w is accessible from w). Thus, a modal logic including T and S5 will be one where the

⁴ We owe this metaphor to Trent Dougherty.

⁵ I.e., alethic rather than, say, deontic or epistemic.

⁶ Assume S5. By T, $p \rightarrow \Diamond p$ and so Brouwer follows from S5 by transitivity of material implication. By contraposition, S5 is equivalent to the axiom that $\Diamond \Box p \rightarrow \Box p$ for all p . Applying this with $\Diamond p$ in place of p , we get $\Diamond \Box \Diamond p \rightarrow \Box \Diamond p$ and so by T and transitivity of material implication $\Diamond \Box \Diamond p \rightarrow \Diamond p$. But $\Box(\Diamond p \rightarrow \Box \Diamond p)$ by S5 and Necessitation. Thus, $\Box(\sim \Box \Diamond p \rightarrow \sim \Diamond p)$ and by Distribution we have $\Box \sim \Box \Diamond p \rightarrow \Box \sim \Diamond p$, and by contraposition $\Diamond \Diamond p \rightarrow \Diamond \Box \Diamond p$. So, by transitivity of material implication, we get $\Diamond \Diamond p \rightarrow \Diamond p$, i.e., S4. Conversely, assume S4 and Brouwer. Applying Brouwer to $\Diamond p$ we get $\Diamond p \rightarrow \Box \Diamond p$. By Necessitation and S4 we have $\Box(\Diamond p \rightarrow \Diamond p)$ and by Distribution we get $\Box \Diamond p \rightarrow \Box \Diamond p$. S5 follows by transitivity of material implication.

accessibility relation is an equivalence relation—reflexive, symmetric, and transitive.

Recall that given a modality that does not satisfy S4, we may naturally form one that does by taking as our accessibility relation the transitive closure of the original accessibility relation A . Likewise, given a modality that does not satisfy S5, we may naturally form one that does by taking as our accessibility relation the equivalence relation generated by the original accessibility relation. More precisely, we define A' as follows: $A'w_1w_2$ if and only if either $w_1 = w_2$ or Aw_1w_2 or Aw_2w_1 , thereby getting a symmetric and reflexive relation A' . And then we can let A'' be the transitive closure of A' . The resulting modal logic is then a more plausible candidate for metaphysical modality than the starting one. Indeed, it is plausible to think of all alethic modal logics as formed by restricting the accessibility relation, and hence we would expect that metaphysical modality has an unrestricted accessibility relation—one holding between all possible worlds.

Moreover, the main alternative to the “Basic Laws of Reality” approach to metaphysical modality—i.e., the causal powers account—very plausibly yields S5 as well, as is argued in Pruss (2011, Section 2.5).

2.3.4.3 WORLDS

Here is another line of thought leading to S5. Suppose our modal semantics involves *worlds*. Some proposals for what to take worlds to be include: maximal states of affairs (Plantinga 1974), maximal spatiotemporally connected concreta (Lewis 1986), and maximally specific consistent ideas in the mind of God (Pruss 2011). But without S5, at least one of the two unfortunate scenarios follows:

- (1) The worlds include impossible worlds

or

- (2) Modality privileges the actual world in a surprising way.

To see why, let W be the collection of the worlds of a modal semantics. And for any world w in W , let A_w be the proposition that w is actual. Suppose contrary to (1) that all the worlds of W are possible, i.e., $\Diamond A_w$ is true at the actual world for all w in W . By modal semantics, if all the worlds of W are possible not just at the actual world, but at all worlds w in W , then we have S5. That's because a world w_2 is possible at w_1 if and

only if w_2 is accessible from w_1 , and so if all the worlds of W are possible at all the worlds of W , it follows that all pairs of worlds in W are related by the accessibility relation—and hence the accessibility relation is reflexive, symmetric, and transitive, just as S5 says.

Thus, if the worlds of W are all possible, and yet some worlds of W are not possible at some of the worlds of W , it follows that W makes the actual world one of the special worlds at which *all* of the worlds of W are possible. But it is surely surprising that we should be lucky enough to live in one of those worlds whose collection of possibilities happens to be maximal. This is the privileging claimed in (2). Hence if we deny both (1) and S5, then we must accept (2). Thus the only way to deny *both* (1) and (2) is to accept S5.

Should we deny (1) and (2)? Regarding (2), it surely does seem right to deny the surprising privileging of the actual world, as we saw. There is also some reason to deny the inclusion of impossible worlds in (1), for impossible worlds are odd. It is hard enough to work out a plausible ontology including all the possible worlds, but working out an ontology of *impossible* worlds is surely harder. Nonetheless, there are a number of authors who allow for impossible worlds (see, e.g., the references in Berto 2012), and so this argument, while suggestive, is far from conclusive.

2.3.4.4 WE CANNOT MAKE NECESSITIES HAPPEN

Start with this very plausible premise:

- (3) If the accessibility relation restricted to non-actual possible worlds is an equivalence relation, then the accessibility relation on the collection of all possible worlds is an equivalence relation.

After all, it would be very surprising if accessibility were an equivalence relation with the single exception of the actual world. That would make our world exceptionally unlucky.

Next, intuitively, we can't turn a contingent truth into a necessary one by doing something possible. A plausible explanation is this principle: If p is contingently true, there is no possibly true proposition q such that were q to be true, p would be a necessary truth. It is very plausible, therefore, that a fortiori,

- (4) If p is contingently true, there is no possibly true proposition q such that q entails $\Box p$.

We may now deduce S5 as follows. As before, let A_w be the proposition that w is actual. Thus, A_w is true at w and only at w . Fix any pair of non-actual possible (i.e., accessible from the actual world) worlds w_1 and w_2 , and for a *reductio* suppose that w_2 is not accessible from w_1 . Let p be $\sim A_{w_2}$ and let q be A_{w_1} . Then p is contingently true and q is possible. If w_2 is not accessible from w_1 , then $\sim A_{w_2}$ is true at all worlds accessible from w_1 , and so $\Box \sim A_{w_2}$ is true at w_1 . Since q is true only at w_1 , we see that q entails $\Box p$, contrary to (4). So by *reductio*, for any pair of non-actual possible worlds w_1 and w_2 , we have w_2 accessible from w_1 . Thus, by (3), the accessibility relation is an equivalence relation on the collection of all possible worlds. So if we restrict our modal logic to possible worlds alone, then we get Axiom S5.

2.3.5 Objection to S4 and S5: No Transitivity of Transworld Identity

Chisholm (1967) bids us imagine a very long sequence of worlds w_1, \dots, w_n , where w_1 is the actual world with Noah and Adam, and w_n is a world just like the actual one but where Noah and Adam's identities are switched around: there is a person in w_n who is named 'Noah' and is exactly similar to our world's Noah (has the same particles arranged in the same way, thinks qualitatively indistinguishable thoughts from his, etc.), but in fact he *is* Adam, and vice versa. Each world in the sequence is very similar to the preceding one, except that Noah is a little bit more like our world's Adam and Adam is a little bit more like our world's Noah. It is plausible that

- (5) w_{i+1} is possible at w_i , for $i = 1, \dots, n - 1$,

since it is surely possible for Adam and Noah to have been a little bit different from how they were. But then:

- (6) If Axiom S4 holds, w_n is possible.

For w_2 is possible by (5) as w_1 is the actual world, and so w_3 is possibly possible, w_4 is possibly possibly possible, and so on. But by S4 all of these iterations of possibility collapse to just plain possibility.

To convert these results into an argument against S4, we simply add:

- (7) w_n is impossible.

And we conclude that Axiom S4 (and hence S5) does not hold.

Principle (7) is plausible. After all, it seems absurd to suppose that things could be just as they are, and yet Adam and Noah be switched around.

Of course, intuitions may diverge with respect to (7). So, for example, Swinburne (1997, p. 152) finds it very plausible that I could live your life and you could live mine. In fact, he finds that so plausible that he uses such possibilities as part of his argument for the existence of the soul. Presumably, then, he would heartily embrace w_n . Embracing w_n is a form of haecceitism: it holds that worlds can differ solely with respect to the thinsnesses or haecceities of objects.

On the other hand, one might instead reason in the other direction: one finds it *so* plausible that there cannot be worlds that are exactly alike and yet different with respect to haecceities that one is inclined to deny S4. We will argue, however, that denying S4 on such grounds is a mistake. To see the problem, imagine that the contingent aspect of the actual world, w'_1 , consists of two identical twins, Castor and Pollux, who have always been and always will be exactly similar apart from a small scratch on Castor's cheek. Let w'_2 be a world just like w'_1 except that Castor is always scratch-free and Pollux always has a scratch like that. If we accept (5), we should likewise accept:

- (8) w'_2 is possible at w'_1 .

But then haecceitism is true at w'_1 , since at w'_1 the worlds w'_1 and w'_2 are both possible (the former by T, the other by (8)). Since w'_1 is possible, haecceitism is possible. And once we've accepted that haecceitism is possible, we no longer have reason to think it's false: it would be very implausible to think that haecceitism is merely contingently false.

So anybody who accepts (5) should also accept (8), and hence should not deny haecceitism. And thus the argument against S4 fails. (Note that this is an argument for haecceitism only for those who accept (5).)

Going back to the original argument, it's also worth noting that (5) is not significantly more intuitively plausible than:

- (9) if w_i is possible, then w_{i+1} is possible, for $i = 1, \dots, n - 1$.

The same small-variation intuition that supports (5) supports (9). But from the fact that w_1 is possible, and n applications of (9) and modus ponens, we conclude that w_n is possible without using *any* axioms of modal logic. Thus, either we should accept haecceitism, and hence that

w_n is possible, or we should reject the small-variation intuition behind both (5) and (9). In neither case do we have an argument against S4.⁷

An alternative response is to defend the thesis that objects are individuated by their causal histories of origination and initial states. Thus, for example, x_1 in w_1 is identical with x_2 in w_2 provided that they have exactly similar causal histories of origination and exactly similar initial (or maybe limiting⁸) states. Such a theory has the problematic consequence that objects' causal histories of origination could not have been at all different, i.e., it implies an overly strong essentiality of origins thesis. The theory also implies that an identity of indiscernibles holds with respect to objects' initial and historical properties—i.e., there cannot be two objects with the same initial and historical properties. But such consequences must be weighed against the theory's explanatory merits.

We identify five merits of this historical theory of identity. First, it provides an elegant account of transworld identity that does not commit one to haecceitism. On this theory, (8) is false, since Castor and Pollux's initial states differ in respect of the scratch. Moreover, for many values of i , (5) will be false, since the sequence of worlds that switch Adam and Noah will need to make many adjustments to their identities.

Second, the theory gives an explanation of David Lewis's (1979) counterfactual arrow of time, namely why there are so many more forward-tracking counterfactuals than backtracking ones, that survives

⁷ A very similar objection applies to Salmon's (1984) argument against S4 based on the claims (a) it is impossible for an object that originated in a chunk of matter α to have originated in a chunk β that has no overlap with α and (b) if an object originated in a chunk of matter α , and α' sufficiently closely overlaps α , then the object could have originated in α' . From (a), (b), S4, and a plausible assumption about a sequence of sufficiently closely overlapping chunks of matter going between α and β , we derive a contradiction, and Salmon rejects S4. But (b), which is parallel to (5), is not significantly more plausible than: (b') if an object could have originated in a chunk of matter α , and α' sufficiently closely overlaps α , then the object could have originated in α' . But the same kind of reasoning that leads from (a), (b), and S4 (with some plausible assumptions about chunks) also leads from (a) and (b') (together with similar assumptions) to a contradiction without any axioms of modal logic. Since (b') is not significantly more plausible than (b), what we have is an argument not against S4, but against the conjunction of (a) and (b).

⁸ Suppose that x_1 and x_2 have no first moment of their existence, either because they have always existed, or because the set of times at which they exist does not contain a lower bound—e.g., the objects came into existence right after noon yesterday, existing at every time later than noon but not at noon itself. In that case, there will be no initial states of the objects, but we may be able to define the notion of the states of the objects having the same decreasing-time limit. Failing that, if such objects are possible, we may need to modify the theory to say that there is some initial interval of times at which the objects are exactly alike.

counterexamples like those of Elga (2001) and Pruss (2003b) to Lewis's approach. For worlds that differ from ours in respect of the past will also differ from ours in respect of the identities of present and future objects given the historical theory. If we have a view of counterfactuals based on similarity of worlds, it will be an attractive feature of this theory of individuation that worlds that differ from ours in the future but not in the past will tend to be more similar to our world than worlds that differ from ours in the past.

Third, the theory allows one to extend, if one so wishes, the Fregean account of existence as a second-order property to the existence of individuals. For we could say that Socrates' existence is grounded in S being instantiated, where S is the property of having such-and-such a history (having a mother named Phaenarete, and so on) and initial state.

Fourth, the historical theory enables reduction of *de re* modality to *de dicto* modality and second-order quantification. Here's how. Let $H(x, C)$ say that C is a predicate expressing the particular history and initial state which x has. Then that x is essentially human could be reduced to:

$$(10) \quad \exists C[H(x, C) \ \& \ \Box \forall y(Cy \rightarrow \text{Human}(y))]$$

and that x is possibly virtuous could be reduced to:

$$(11) \quad \forall C[H(x, C) \rightarrow \Diamond \exists y(Cy \ \& \ \text{Virtuous}(y))].$$

Finally, as we will see in Section 2.3.6, the theory allows us to have propositions concerning non-existent objects, and hence allows one to say that the proposition that Socrates doesn't exist is possibly true.⁹

We see, then, that two theories—haecceitism and the historical theory—provide well-motivated ways out of the Chisholmian “slight-modification” argument against S4.

2.3.6 Objection to Brouwer and S4: Existentialism

The objection in this section, and the response to it, are somewhat more technical and can be skipped with no loss of continuity. ‘Existentialists’ about propositions say that there cannot be propositions that are *de re* about nonexistent entities (Plantinga 1983). Existentialism causes trouble for both S4 and Brouwer (see, e.g., Adams 1981 and Fitch 1996).

⁹ Note that the last three advantages are enjoyed by a Platonist haecceitism as well: just replace historical/initial properties with haecceities.

The argument against S4 runs as follows, where ' $\langle s \rangle$ ' is short for 'the proposition that s ':

- (12) Necessarily, Socrates = Socrates.
- (13) For any sentence s , necessarily, if $\Box s$, then $\Box \text{True}(\langle s \rangle)$.
- (14) Necessarily, if $\text{True}(s)$, then s exists.
- (15) Socrates doesn't exist necessarily.
- (16) Necessarily, if $\langle \text{Socrates} = \text{Socrates} \rangle$ exists, then Socrates exists. (Existentialism)
- (17) If S4 holds, then necessarily, $\Box(\text{Socrates} = \text{Socrates})$. (By (12))
- (18) If S4 holds, then necessarily, $\Box(\text{True}(\langle \text{Socrates} = \text{Socrates} \rangle))$. (By (13) and (17))
- (19) If S4 holds, then necessarily, $\text{True}(\langle \text{Socrates} = \text{Socrates} \rangle)$. (By (18) and T)
- (20) If S4 holds, then necessarily, $\langle \text{Socrates} = \text{Socrates} \rangle$ exists. (By (14) and (19))
- (21) If S4 holds, then necessarily Socrates exists. (By (20) and (16))
- (22) S4 doesn't hold. (By (15) and (21)).

The argument against Brouwer runs as follows, reusing (14) and (15) from the argument against S4:

- (23) Socrates exists.
- (24) For any sentence s , necessarily, if s , then $\langle s \rangle$ is true.
- (25) Necessarily, if $\langle \Diamond E! \text{Socrates} \rangle$ exists, then Socrates exists. (Existentialism)
- (26) If Brouwer holds, $\Box \Diamond(E! \text{Socrates})$. (By (23))
- (27) If Brouwer holds, $\Box \text{True}(\langle \Diamond E! \text{Socrates} \rangle)$. (By (24) and (26))
- (28) If Brouwer holds, $\Box(E! \langle \Diamond E! \text{Socrates} \rangle)$. (By (14) and (27))
- (29) If Brouwer holds, $\Box(E! \text{Socrates})$. (By (25) and (28))
- (30) Brouwer doesn't hold. (By (15) and (29))

One response to the two arguments is simply to deny existentialism, by using either Platonist haecceitism or the historical theory from Section 2.3.5 to account for singular propositions. Thus, 'Socrates = Socrates' could be replaced with ' $\forall x(H(x) \rightarrow x = x)$ ' and ' $E! \text{Socrates}$ ' with ' $\exists x(H(x))$ ', where H is the predicate expressing Socrates'

haecceity or describing his complete history of origination and initial state.

But these arguments do not *require* this kind of a controversial response. We need only deny (13) and (24). And existentialists *must* deny (13) and (24), independently of S4 and Brouwer. For consider this argument:

(31) It's a theorem that Socrates = Socrates. (It's a tautology in Positive Free Logic)

(32) It's a theorem that $\Box(\text{Socrates} = \text{Socrates})$. (By Necessitation and (31))

(33) If (13) or (24), then $\Box \text{True}(\langle \text{Socrates} = \text{Socrates} \rangle)$. (By (32))

(34) If (13) or (24), then $\Box E!\langle \text{Socrates} = \text{Socrates} \rangle$. (By (16) and (33))

(35) If (13) or (24), then $\Box E!\text{Socrates}$. (By (16) and (34))

(36) Neither (13) nor (24) holds. ((15) and (35))

Any other tautology about Socrates could be used in arguments of this sort, including such tautologies as that Socrates either exists or does not exist, which are acceptable even in Negative Free Logic (Nolt 2010, Section 3.1).

We can also put the problem directly in terms of possible worlds semantics. For brevity, we will limit the discussion to Brouwer. Assume existentialism and suppose worlds to be abstract entities. (Lewisian physical universes are not going to be a plausible account of worlds for existentialists.) For definiteness, suppose worlds are some sort of 'collections'—they are going to be too large to be sets—of propositions such that for every proposition, either that proposition or its negation is in the collection, but not both (cf. Pruss 2011, Sections 3.2–3.3.1). We will assume that collections have their members essentially, as sets do. Possible worlds are then worlds such that it is possible that all the propositions in any of those worlds are true. Then the actual world @ is a collection that contains the proposition (Socrates dies in 399 BC). Let w be some possible world at which Socrates does not exist. Then @ does not exist at w , since the membership of a collection is essential to it, and (Socrates dies in 399 BC) does not exist at w and hence is not a member of @ at w , assuming non-existent objects do not stand in relations like membership. But if @ does not exist at w , then a fortiori it is not true at w that @

is a possible world, and so @ will not be accessible from w . Since w is accessible from @, it follows that accessibility is not symmetric and hence Brouwer fails (cf. Speaks 2009).

But just as the existentialist arguments against Brouwer and S4 involving propositions proved too much, this argument does so as well. For w also does not exist at w , since one of the members of w is the proposition (Socrates does not exist), and that proposition does not exist at w .¹⁰ If from the fact that @ does not exist at w we can conclude that @ is not accessible from w , by the same token we can now conclude that w is not accessible from w , and so the accessibility relation is not reflexive and hence T fails. If there is no way out of this argument for the existentialist, then again existentialism fails *wholly apart* from any alleged incompatibility with S5.

Existentialists need to say that a proposition could be necessary without that proposition existing necessarily. We'll consider three ways one may attempt to achieve this result. First, one may allow objects to have properties at worlds where they do not exist. Maybe Sherlock Holmes has intelligence at the actual world, even though he does not actually exist, and maybe Socrates is human at all worlds. Then p could have the property of truth at w without p existing at w . This first solution may give up on Quinean metaontology: perhaps it could be that $\exists x F(x)$, while the value of the bound variable, x , doesn't actually exist.

Second, one may suppose that ' p is true at w ' should not be seen as attributing at w the property of truth to p , but should rather be seen as attributing truth-at- w to p (Adams 1981, p. 22), a property that p has in the actual world. We can flesh out this proposal in terms of world-indexed 'truth' properties. For instance, given an abundant view of properties, it is plausible that there would be a property T_w of propositions such that $\langle s \rangle$ has that property if and only if s is true at w , and that this property extends to a natural property that can also be had by propositions p that cannot be expressed as $\langle s \rangle$ (i.e., any ineffable propositions). This property T_w is the truth-at- w property, and once we have it, then we can say, e.g., that p is necessarily true provided that p (actually) has T_w for all worlds w .

This second solution is incomplete, however. For let $p = \langle \Box(\text{Socrates} = \text{Socrates}) \rangle$, and suppose p is necessary (because it is a theorem). Then by

¹⁰ There is no contradiction between the claim that p is a member of w and that p does not exist at w . The latter claim simply comes to: $(\sim E!p) \in w$.

the semantics we have set out, it is necessary that $\langle \text{Socrates} = \text{Socrates} \rangle$ has T_w for all worlds w . So it is necessary that $\langle \text{Socrates} = \text{Socrates} \rangle$ has a property—the property of having T_w for all worlds w . Then, unless we revert to the first solution on which a thing can have a property without existing, it follows that it is necessary that $\langle \text{Socrates} = \text{Socrates} \rangle$ exists.

A third solution is to deny the inference from the proposition that $\Box p$ to the proposition that $\langle p \rangle$ is necessary. The idea here is that we may treat sentential operators, such as \Box , as *not* ascribing to a proposition a property (such as the property of being true at all worlds). Rather, we simply use ' \Box ' to form a new, modal proposition. Then one may keep the Quinean metaontology and the uncontroversial aspects of the argument from tautologies we have given.

Although these strategies are contestable, the point is that a committed existentialist will need some such strategy if she wishes to avoid proving too much. And that same strategy will then allow the existentialist to keep S5.

An important side-lesson in all of this is that given the possibility of necessary tautologies with singular reference, existentialists cannot accept the full Tarskian schema for propositions:

(37) True($\langle s \rangle$) if and only if s .

Instead, they should go for the modified Tarskian schema:

(38) True($\langle s \rangle$) if and only if ($\langle s \rangle$ exists and s).

It is, granted, somewhat odd to affirm that it is necessary that Socrates is Socrates but deny that necessarily the proposition that Socrates is Socrates is true. But that is a problem for existentialists, not for S4 or Brouwer. These problems disappear if we reject existentialism about propositions, whether by means of haecceities or the historical theory.¹¹

A similar issue arises with respect to natural kinds. One might worry that there are no propositions about unexemplified natural kinds. So if there were no photons, there would have been no proposition that there are no photons, and hence it is not possible that the proposition $\langle \text{There are no photons} \rangle$ is true. Except with respect to the historical theory,¹²

¹¹ For a different response to these problems, see Bennett 2005.

¹² Something like the historical theory might apply in *some* cases. Biological kinds might be defined by evolutionary history. Moreover, some particle types could be defined in the

the strategies we have discussed apply. So, for example, we can reject the claim that there are no propositions about unexemplified natural kinds by embracing something like Platonism (which is functionally analogous to haecceitism here, but is less controversial). Or we can accept that although there is no possible world *in* which the proposition \langle There are no photons \rangle is true, there is a possible world *w* such that that proposition is true *at w*.

2.4 The S5 Ontological Argument and Two-dimensional Semantics

2.4.1 *The Basic Ontological Argument*

The following version of the Plantinga (1977) ontological argument is one of the simplest arguments for a necessary being. Many of our arguments will in fact take the form of simply arguing for its premise. Start with the principle:

POSSIBILITY. Possibly, there is a necessary being.

By S5 we then get:

(39) There is a necessary being.

The derivation of (39) from POSSIBILITY is easiest done in terms of possible worlds. Let @ be the actual world (we will use this notation throughout). By POSSIBILITY, let w_1 be a possible world with a necessary being, x . Then by NECBEING, at w_1 we have $\Box E!x$ and $\Diamond \exists y \text{Causes}(x, y)$. By S4, we have $\Box \Box E!x$ at w_1 . By Brouwer, the actual world @ is accessible from w_1 . Thus, $\Box E!x$ at @. By S5, $\Box \Diamond \exists y \text{Causes}(x, y)$ at w_1 , and hence since @ is accessible from w_1 , we have $\Diamond \exists y \text{Causes}(x, y)$ at w_0 . Hence, x is a necessary being at @.

While we will offer a number of arguments for POSSIBILITY later in the book, at this point we simply offer POSSIBILITY as having some initial intuitive plausibility. A necessary being seems conceivable, and that by itself may give one *some* prima facie reason to think it is possible—it

absence of instances in a way analogous to defining individuals by histories. For instance, even if there were no photons, perhaps one could rigidly characterize a photon as the natural kind of particle that results under the laws of @ from the collision of an electron and a positron at such-and-such an energy level. But that won't help with getting the possible truth of propositions like \langle There are no photons or any other kinds of particles \rangle .

may shift one's credences in favor of such a being. (But there is a parody problem if it is equally conceivable that there is no necessary being, as we shall explain in Section 2.4.3)

The main point of introducing the argument here is not to give a significant argument for the conclusion of the book, but to show that our conclusion follows from POSSIBILITY. Much of the book will be devoted to developing and investigating arguments for POSSIBILITY.

2.4.2 *Two-dimensional Semantics*

One may well have the following general concern about conceivability arguments for metaphysical possibilities like POSSIBILITY: it seems conceivable that there be a body of water without hydrogen atoms in it or that Tully be someone other than Cicero, yet we don't thereby have significant evidence against the idea that necessarily water is H_2O or that Tully is Cicero. One might go on to think, therefore, that the fact that the existence of a necessary being seems conceivable only offers evidence for the *conceivability* of a necessary being, not for its *possibility*. A standard way to make the distinction is with two-dimensional semantics.

Let s be some sentence in a language L and let w be a possible world. There are two ways of evaluating s at w . One way is to ask whether the proposition $\langle s \rangle_@$ (normally we denote this with just $\langle s \rangle$) that s expresses at $@$ is true at w . The other way is to ask whether the proposition $\langle s \rangle_w$ that s would express at w if it were said in a language L_w appropriately analogous to L , imagined to be established at w by sufficiently similar practices to those that establish L at $@$, is true at w . Given S5, we can now say that the sentence s is possible (respectively, necessary) provided that at some (every) possible w , the proposition $\langle s \rangle_@$ is true, and that s is conceivable (respectively, a priori) provided that at some (every) possible w , the proposition $\langle s \rangle_w$ is true.

Thus, that water is H_2O is necessary because the proposition actually expressed by this sentence is true in every world. Yet, in a world w like ours but where XYZ behaves as H_2O does in our world, the sentence 'Water is H_2O ' expresses a different proposition—one that claims identity between XYZ and H_2O . Thus $\langle \text{Water is } H_2O \rangle_@$ is true at w and $\langle \text{Water is } H_2O \rangle_w$ is false at w . That water is H_2O is, thus, necessary but not a priori, and this result is what we would expect from Kripke (1980).

However, while the Basic Ontological Argument was formulated in terms of possibility, it can be equally well formulated in terms of conceivability. Keeping in mind our observation about the semantic variability

of terms such as ‘water’, let us say that a term is semantically *invariant* if it cannot vary in its semantic value across worlds without varying the basic practices that established the language of which that term is a part. Logical connectives are then semantically invariant. Surely so is the existence operator of our free logic. While natural kind terms are not semantically invariant, it is very plausible that the $\text{Causes}(x, y)$ predicate is. Any sentence s built out of semantically invariant parts is semantically invariant, so that $\langle s \rangle_w = \langle s \rangle_@$ for all possible w . A semantically invariant sentence is possible if and only if it is conceivable, and it is necessary if and only if it is *a priori*.

And so ‘There is a necessary being’ is semantically invariant, and thus is true if and only if it is conceivable. Therefore, we could just as well have argued for the existence of a necessary being from

CONCEIVABILITY. Conceivably, there is a necessary being.

instead of from POSSIBILITY, and the objection we considered fails. This point parallels Chalmers’s (2002) observation that in the case of God, possibility and conceivability coincide.

We leave it as an exercise to the reader to make similar adjustments in the arguments of the book when a conceivability claim appears more plausible to the reader than a possibility one.

2.4.3 *A Parody*

Of course, one can also give a standard parody argument against the existence of a necessary being. Start with:

NEGATIVE POSSIBILITY. Possibly, there are no necessary beings.

Given S5, it follows that:

(40) There is no necessary being.

Here is why. Suppose n is a necessary being in $@$. Then n will exist, and necessarily so, in every possible world by S4. And by S5, at every possible world n will be possibly a cause, and so n will be a necessary being. It follows, therefore, that if there actually is a necessary being, there necessarily is one. Hence if there possibly is no necessary being, then there is actually no necessary being.

One might try to defend POSSIBILITY as more plausible than NEGATIVE POSSIBILITY by invoking some idea that positive states of affairs are *more* conceivable than negative ones (cf. Pruss 2012c, Section 2.3.1), but that

will not be the route we take here. Even if one thinks that neither of POSSIBILITY and NEGATIVE POSSIBILITY should be chosen over the other, there may be a value to the two arguments. We learn that exactly one of POSSIBILITY and NEGATIVE POSSIBILITY is true: for they cannot be both true as they jointly entail that there both is and is not a necessary being. In light of their inconsistency, then, we might see these principles as *prima facie* plausible, yet competing modal principles, neither of which has significant advantage over the other. So, given no further evidence, we should consider both principles to be serious epistemic possibilities. And in particular one should take seriously propositions entailed by one or the other of them, including the proposition we argue for in this book—that there is a necessary being. This consideration, we hope, will add to our readers' motivation to seriously evaluate the arguments we will offer.

3

An Argument from Contingency

3.1 Introduction

We will begin our investigation of arguments for a necessary being by discussing the classical *Argument from Contingency*. Our goal is to highlight strengths and weaknesses of this sort of argument by presenting and defending an up-to-date version. The discussion here will orient us to the subsequent project of developing newer, more sophisticated arguments for a necessary being.

We will first outline our version of the Argument from Contingency and review several reasons that have been given in support of its main premises. Then we will assess classical objections to this type of argument due to David Hume and Immanuel Kant. Next, we will consider objections by contemporary philosophers, including Graham Oppy, Peter van Inwagen, and William Rowe. We will close with an overall assessment of the argument's strengths and weaknesses.

3.2 The Argument from Contingency

The contingency-based cosmological argument is designed to identify a causal or explanatory link between *contingent existence* and *necessary existence*. The argument typically begins with the mundane premise that something or other exists. Next, the argument purports to provide an answer as to why or how anything manages to exist at all. A key component of an argument from contingency is a causal or explanatory principle, such as: *whatever can fail to exist has been caused to exist*. The purpose of such a principle is to provide a rationale for inferring that contingent reality requires a necessary foundation of some sort.

The intended conclusion, then, is that contingent reality has its ultimate source in some necessarily existing reality.

There are many versions of the Argument from Contingency. Some versions focus on *causal* links between things, states or events; others focus on *explanatory* links. Some versions include an argument against an infinite causal regress; others allow for an infinite causal regress. Some have as their conclusion that there is a necessary being, whereas others go further and attempt to deduce various attributes of the necessary being.¹ And so on.

We will present what we take to be an instructive and representative form of the argument. We call our version ‘the Argument from Contingent Existence’—or ‘ACE’ for short. An initial statement of the argument is as follows:

- (1) For any particular contingent concrete things,² there is an explanation of the fact that those things exist.
- (2) Considering all the contingent concrete things that exist, if there is an explanation of the fact that *those things exist*, then there is a necessary concrete thing.
- (3) Therefore, there is a necessary concrete thing.

Here is a more precise, symbolic formulation:

- (4) $\forall xs[(\forall y(y \in xs) \rightarrow C(x)) \rightarrow EE(xs)]$.
- (5) $\exists xs[EE(xs) \wedge (\forall y(C(y) \rightarrow y \in xs))] \rightarrow \exists yN(y)$.
- (6) $\therefore \exists yN(y)$.

We interpret the predicates as follows: ‘ $EE(xs)$ ’ reads ‘there is an explanation of the fact that the xs exist’;³ ‘ $C(x)$ ’ reads ‘ x contingently exists and is concrete (causally-capable)’; ‘ $N(y)$ ’ reads ‘ y is a necessary being’—i.e., ‘ x necessarily exists and is concrete (causally-capable)’; and ‘ $y \in xs$ ’ reads ‘ y is one of the xs ’.

Notice that the argument makes use of plural quantification: ‘ \forall ’ may take one or many xs . An advantage of plural quantification is that it allows

¹ See, for example, Rasmussen 2010.

² Recall from Chapter 1 that by ‘concrete thing’ we mean ‘something that possibly causes something.’

³ The explanandum here is logically equivalent to the conjunction of claims of the form “ x exists,” assuming there is such a conjunction.

us to talk about many things without assuming that there is an *aggregate* or *sum* of those things that is distinct from them. So, for example, we do not assume that all contingent things taken together form a composite object. Nor do we even assume that there is a *set* of all contingent concrete things (the ‘ \in ’ of being one of a plurality is not the set membership relation).⁴ Moreover, the use of plural quantification seems to accord with our ordinary talk about pluralities: one says, for example, ‘I like these flowers’, where ‘these flowers’ rigidly picks out many things at once. Although our use of plural quantification is not controversial, readers who prefer singular quantification are welcome to interpret the argument in terms of facts about *sets* or *classes* of contingent concrete things.

We make a simplifying assumption: we assume that there is at least one contingent concrete thing. We take this assumption to be relatively safe. Those who reject it presumably do so because they think *every* concrete thing exists of necessity.⁵ In other words, they already accept the conclusion that there is a necessary concrete thing. (The other option is that there are no concrete things at all. We take it as sufficiently uncontroversial, however, that at least some things are concrete—in the minimal sense of being able to bring about some effect.)

If there are concrete things, then the premises of ACE guarantee the conclusion that there is a necessary concrete thing. The first premise says, in effect, that any fact of the form *the contingent concrete xs exist* has an explanation. The second premise says that if the first premise holds true when the ‘xs’ designate *all* contingent, concrete things (and there is at least one), then there is a necessary concrete thing. The conclusion follows. We will support the premises next.

3.3 On Behalf of the Premises

Let us begin with premise (1): for any particular contingent concrete things, there is an explanation of the fact that those things exist.

⁴ Thus, we completely sidestep the sort of set-theoretic worries Ross (2013) raises about totalities. Puzzles can still arise when dealing with certain totalities expressed in the language of plural quantification (see Levey 2016 or Pruss and Rasmussen 2015), but none of these establishes a problem with the totality relevant to our argument—i.e., the totality of contingent concrete things.

⁵ Cf. Williamson 2001. But see our note 2 above.

(In symbols: $\forall xs[(\forall y(y \in xs) \rightarrow C(y)) \rightarrow EE(xs)]$.) We shall refer to this premise as ‘the explanatory principle’.

We should be clear at the outset that we make very minimal assumptions about the nature of explanation. We take an (adequate) explanation to be some fact (or true proposition) that *to some extent* accounts for why some other fact (or true proposition) obtains. So, for example, the fact that Adam just sat on a rickety wooden bench would, it seems, explain to at least some extent why Adam just heard a cracking sound. We leave it open whether explanations are deterministic (necessitating) or indeterministic (non-necessitating). It could be, for instance, that a certain quantum event is indeterministically explained by its prior states together with certain probabilistic laws.

We do however take explanation to be factive: that *p* explains *q* entails that both *p* and *q* are true. The justification for this is that we take explanation claims to be expressed by ‘because’-sentences, and ‘because’-sentences are factive: if *u* because *v*, then both *u* and *v*. There is another usage of the word “explanation” that doesn’t align with our factive usage, and that is the one employed in the phrase “inference to best explanation”: typically the best “explanation” is best among “explanations” of which many are false. This is an innocent ambiguity of usage. If we were to regiment usage, we would instead talk of “inference to best putative explanation.”

Note that contingent *causation* is compatible with logically deterministic *explanation*. For instance, a state *e* might be logically deterministically explained by the fact *that e was caused by c*. The explanation would be logically deterministic because the fact *that e was caused by c* would logically imply the obtaining of *e*. Notice that the explanation doesn’t depend upon how *e* was caused: *e* might have been indeterministically caused. In other words, the fact *that e was caused by c* may logically deterministically explain *e*, even if the causal relation is indeterministic.

So why believe the explanatory principle (1)? We will summarize four candidate reasons: (i) the principle is a simple inductive generalization from apparent instances of explanation; (ii) the principle is justified by a priori intuition; (iii) the principle makes sense of the fact that we don’t constantly witness massively ad hoc arrangements of contingent things coming into existence, and (iv) the principle allows us to avoid an arbitrary, inexplicable boundary between the explained and the unexplained. There is also the argument that the explanatory principle is implicit in our

practices of empirical reasoning, including scientific inquiry. Rather than further develop that argument, we note here that arguments (i)–(iv) may also provide an epistemological foundation for the role of explanation in empirical reasoning.

Consider, first, the proposal that the explanatory principle is an inductive generalization from many apparent instances of explanation. Explanations are part of our ordinary experience. Steve discovers a puddle of milk on the floor, and he wonders where it came from. He assumes there is an answer. And he assumes the answer *explains*, to some extent, the presence of the puddle of milk: maybe the milk is there because someone spilled milk on the floor. By contrast, Steve doesn't even entertain the idea that the milk may have popped into place without any explanation at all. What's true for the milk would seem to be equally true for (say) a pile of rocks next to a street sign: one expects there is an explanation of its existence—whether or not anyone knows what it is. The same holds for a grove of trees; and for a constellation of stars; and for an arbitrary array of particles; and for a zoo full of animals; and for big things and small ones; and heavy things and light ones; visible things and invisible ones; and so on. It may be reasonable to generalize from the many, various cases. So, for example, one might infer the following: for any *xs* that *happen* to exist (i.e., they don't exist of necessity), there is an explanation of their joint existence.⁶ Contingent things, be they few or many, related or unrelated, don't just happen to exist without any explanation at all, one might think.

Of course, if we have counterexamples to the explanatory principle, then the inductive argument fails. We will consider the prospect of counterexamples in the discussion of Objections 8 and 9.

Someone might reply that it is wrong to talk of 'explanations' at a fundamental metaphysical level. Explanations are things we say or think about the universe to make sense of it from a human perspective, but they are not part of the basic, mind-independent furniture of reality. So it is not legitimate to infer from talk of explanations in ordinary human contexts that there is a metaphysical explanation of the deepest layers of contingent reality.⁷

⁶ The principle leaves open whether or not *necessary* things should also have an explanation. We will consider the prospect of an explanation of necessary things in our assessment of Objection 10.

⁷ We thank Sean Carroll for offering this response to us.

There are two different concerns here. First, there is the concern that explanations are not objective. We observe, however, that even if explanations are themselves mind-dependent, still, explanation-based reasoning can help us discover objective features of the world. For instance, the biological theory of common ancestry explains a host of biological facts, and we therefore have reason to think the theory is *true*. Moreover, inference to the best explanation (IBE) is generally thought to be a good guide to the external world, whether or not the explanations involved in that reasoning are purely mental activities.

Perhaps the greater concern is that explanation-based reasoning may not be reliable when it is applied in contexts that are far removed from ordinary human experience. We appreciate the call for caution, and we will return to the question of which, if any, differences may be explanatorily relevant. Here we note that scientists use IBE in contexts that are very far removed from ordinary experience, such as when assessing competing hypotheses about subatomic particles, dark matter, or even multiverses. If IBE is not reliable in these contexts, then we have no reason to prefer the best explanation over no explanation. But we do have reason to prefer the best explanation, even in remote contexts, or so it may seem.

We should emphasize that the explanatory principle is a relatively simple hypothesis. We may express the hypothesis with just a few conceptually basic terms: ‘explanation,’ ‘things,’ ‘the existence of,’ and ‘fact’ (plus logical terms). We suspect that no conceptually *simpler* principle can account for the wide range of apparent instances of explanation (putting aside explanatory principles that imply the explanatory principle in question). The principle seems neither ad hoc nor unlikely a priori. So, in view of the simplicity, predictive power, and empirical adequacy of the explanatory principle, one may have some reason, at least, to think the principle is true. (Of course, this reason may be defeated by other considerations. One sort of consideration involves reasons to think there is no necessary being that could serve as an explanatory foundation for the existence of contingent concrete things. We shall examine arguments against a necessary being in Chapter 9.)

We should be careful, though, to consider whether there may be a competing principle that enjoys equal inductive support. Consider, for example, this principle: every concrete thing is contingent. Observe that the concrete things we encounter are all contingent. So, by inductive generalization, every concrete thing whatsoever is contingent—and so

there is no necessary being. We may then convert this result into an argument against our explanatory principle. Just add the premise that an explanation of all contingent concrete things (taken together) must be in terms of a necessary being.

We will say more about competing principles in our Objections section (see Objection 9), but here we point out several factors that distinguish our inductive argument from the parallel one we have set out. First, even if there are necessary concreta, our senses seem to be limited to detecting contingent concreta. (An argument for that: (i) our senses are limited to detecting spatial objects, (ii) some spatial objects are contingent, and (iii) differences in spatial properties, such as size or location, are irrelevant to a difference with respect to necessary existence.) By contrast, if a blue sphere (say) snapped into existence uncaused before your eyes, you could sense its appearance. Second, even if we did sense a necessary being, it isn't clear how we could infer that it *is* a necessary being. Even if we find ourselves unable to destroy an object, we do not thereby discover that something exists in all possible worlds. We have reason, therefore, to expect our observations to be as they are if there *are* necessary concreta. By contrast, we have no reason to expect our observations to be as they are if the explanatory principle is false. So although the parallel argument invites caution, there are differences.

A second reason why one might find the explanatory principle plausible is based upon a priori reasoning. Pick an arbitrary state of existence *E*, which consists of things existing. Now suppose *E* isn't necessary: instead, it is metaphysically possible that *E* never obtains. Suppose also that *E* in fact obtains. One may certainly wonder why *E* obtains, considering that *E* might instead have been completely absent from reality. Our curiosity here may arise even prior to specifying any particular details about the nature of *E*. It doesn't seem to matter, for instance, how *big* or *small* the things within *E* are: *E* might consist of things no bigger than a pea, or it might consist of a bunch of planets. These differences don't seem to make a difference with respect to our expectation of an explanation. Similarly, differences in the *shape* of the things in *E* don't seem relevant: a square object is no more or less likely to have an explanation than a triangular one (for instance). And even if we imagine that *E* is composed of *non*-spatial contingent things, if there are any such, it seems an explanation of their existence is equally pressing. It also doesn't seem to matter whether *E* consists of *all* the contingent things there are or only some: three peas

do not call out for an explanation any more when they are found in a rich world like ours than when they happen to be the only contingent things in existence.

What's relevant, one might think, is that *E* didn't have to exist. Its *contingency* is what inspires the conviction that there must have been some explanation of its existence. (Or it is *E*'s sheer existence. The result is the same: *E* calls out for an explanation, regardless of what *E* is specifically.)

Of course, intuitions can mislead. And just because one might *expect* there to be an explanation, it doesn't thereby follow that there actually is one. After all, we don't always get what we expect. Still, in the absence of a reason to doubt the explanatory principle, rational intuition—in the form of undefeated *seemings*—may count as evidence for those who have the intuition. For example, various axioms of logic and mathematics may seem true to you, and if you have no reason to think they are not true, then the fact that they seem true provides you evidence that they are true. We endorse a broad phenomenological conservatism as foundational to both scientific and mathematical reasoning: if it seems to one that *p*, then, in the absence of defeaters, one has some degree of justification for accepting *p*.⁸ Suppose that such a principle is right. And suppose it seems to one that any given contingent state of existence, abstracted from its specific details, would have an explanation. Then, in the absence of defeaters, one has some degree of justification for accepting the explanatory principle.

Here is a third reason in favor of the explanatory principle. The principle provides a relatively simple explanation of why there isn't unpredictable chaos all the time. Chaos results if arbitrarily large chunks of matter regularly pop into existence uncaused everywhere all the time. We don't observe that happening, of course. But why not? Here is a simple answer: it *can't*. For suppose that unexplained states are in fact impossible. Then macroscopic objects can't come into being unless there are prior states from which they may arise. Thus, given a law-like connection between states, there is no expectation that we will witness large arbitrary chunks of matter appearing before our eyes at any moment. (To be clear, nothing in our argument rules out the metaphysical possibility of there

⁸ For an elaboration and defense of this sort of principle, see Huemer (2001).

being different, more complex laws of nature, such that events would likely *appear* chaotic and uncaused given those laws.)

Now suppose instead that unexplained states of existence are possible. So, for instance, it is possible, let us say, for there to be a pair of protons that has no cause or explanation (not even an *indeterministic* cause or explanation). Then it would seem that any *number* of unexplained things would be possible. It would be quite strange if instead there were some precise finite number of states of existence that could obtain without an explanation: it seems that if two protons, say, can appear without a cause, then so could three, and four, and five, and so on for any number. So, suppose there are *infinitely* many possible states of existence that can obtain at any given time. Then we may wonder why unexplained states of existence are not a common phenomenon. After all, at any moment any number of countless arbitrary mixes of possible objects can snap into being for no reason at all. Jonathan Edwards nicely summarizes the idea: "If there be no absurdity or difficulty in supposing one thing to start out of non-existence into being, of itself without a Cause; then there is no absurdity or difficulty in supposing the same of millions of millions" (Edwards, 1830, p. 53).

Prior builds upon Edwards: "If it is possible for objects to start existing without a cause, then it is incredible that they should all turn out to be objects of the same sort" (Prior, 1968, p. 65). Or, if they are not all of exactly the same sort, then it is still incredible that they fall into a small number of sorts. The number of types of elementary particles appears to be in the double or at most triple digits, whereas the number of particles in the observable universe is of the order of 10^{88} (Kofman, 1997, p. 133).

Let us try to make the argument from chaos more precise. Let *S* be the class of all possible contingent, concrete simples that could exist without a cause. We ask: "How likely is it that you will witness some members of *S* exist without an explanation within the next minute?" It is plausible that the most reasonable answer is that the probability is 1 (or infinitesimally close to 1)—*if S* is not empty.

Here is why. There seem to be only three serious possibilities for how many members *S* might have: either *S* has no members at all, or it has exactly one, or it has infinitely many members without bound. It is quite implausible to think that *S* has, say, two or fifteen or $10^{88} + 17$ members. Why that number, rather than one more? Any finite upper-bound on the number of *possible* uncaused objects seems intolerably arbitrary.

The option of *S*'s having exactly one member is a little more plausible. Perhaps, for instance, instead of a necessary being, there is a simple deity *D* that is contingent but nonetheless is such that necessarily all contingent concrete things have *D* as their cause. Thus, *D* is *almost necessary* in the sense that it exists in all possible worlds where any concrete being exists. Nonetheless, such a hypothesis is not plausible. The best explanation for why a being exists in all worlds where there are concrete things is that it exists in all worlds. (See also arguments about almost necessary beings in the Appendix, Section A.3.) And apart from such a theological hypothesis, it is difficult to think of a serious option where there is only one possible contingent concrete simple that can be causeless. The other two options are more plausible: the number of members of *S* is zero or without bound.

So let's say *S* has members without bound. Consider, now, that no uncaused contingent simple logically depends upon any others: uncaused contingent simples are plausibly freely recombinable. So, the probability that any given simple in *S* exists uncaused is plausibly independent of the probability that any *other* simples in *S* exist uncaused. Next, consider that since the simples in *S* can exist in the absence of any antecedent causal conditions (per hypothesis), it is plausible that there is no restriction as to where or when a given simple might show up uncaused. Third, the probability that at least *one* out of let's say $10^{999,999,999}$ simples in *S* will show up before your eyes within the next minute is surely not *zero*.⁹ From here we may deduce that countless packs of simples will *probably* appear before your eyes within the next minute—and if enough do, surely one will be observable. The deduction is straightforward. There are *infinitely* many sets of $10^{999,999,999}$ simples in *S*, and a member from *each* set has an independent non-zero chance of appearing before your eyes in the next minute. It follows, then, that there will likely be countless simples (enough to be observed) appearing before your eyes within the next minute—in fact, in the next *second*. But clearly, that isn't going to happen.¹⁰

⁹ Of course, it is *strictly possible* for an event, like tossing heads infinitely often in a row, to have a zero probability. But our case merely involves getting at least *one* of many, many purportedly possible events. Why would the probability of *that* be zero? It seems it wouldn't be.

¹⁰ One might think that the probability of a simple popping into existence causelessly is infinitesimal, say a hyperreal infinitesimal. Our argument can still work, assuming there is a single infinitesimal *b* that is a lower bound for the probability of a simple popping into

It is worth emphasizing that the same basic argument applies to *eternal* contingent things. For suppose an eternal particle, say, can exist without any cause. Then the existence of that particle has no explanation—or at least no causal explanation. And if *that* particle exists without an explanation (or causal explanation), then any number of eternal particles of any kind could equally exist without any (causal) explanation. It seems, therefore, that in all probability, there would be infinitely many kinds of particles arranged in arbitrary, ad hoc formations existing from eternity. But such macro-level chaos doesn't obtain in our universe. The explanatory principle makes sense of why not: uncaused chaos doesn't obtain because unexplained (and uncaused) contingent existence is impossible.

Someone might reply that perhaps there are contingent *laws* that make it unlikely that there are uncaused contingent things in our world. But what explains those laws? If they have no explanation, then we can run the probability argument in terms of contingent laws: any number of laws might snap in or out of existence at any moment for no reason. And if instead the contingent laws have an explanation, then we can run the rest of our argument in terms of contingent laws. Simply replace occurrences of 'contingent concrete thing' with occurrences of 'contingent law,' and much of the support for the premises remains the same. (We are assuming for the sake of argument that the nature of the contingent concrete things does not itself explain the contingent laws. For we'd run ourselves in a circle if we made that assumption while continuing to assume that the contingent laws explain why contingent concrete things don't inexplicably invade our world.)

A different objection is that one might hold that there would be no meaningful probabilities of objects jointly or individually popping into existence with no explanation. Such events would be 'saturated nonmeasurable,' and in particular we couldn't say that such *ex nihilo* arisings would be likely. Nor could we even say anything probabilistic about how

existence causelessly over the next minute before your eyes. For then $1/b$ will be an infinite number. But there is no bound, not even an infinite bound, on how many causeless simples there could be, once we admit the possibility of causeless simples. So there will be some collection C that contains at least $100/b$ such simples. The probability that some member of C will pop into existence before your eyes will then be at least $1 - (1 - b)^{100/b}$, which is approximately equal to $1 - e^{-100}$. Thus, it is extremely likely that some member of C will pop into existence before your eyes. And, as there are many such collections C , it is extremely likely that many will—enough to be observed.

many such arisings would happen (Theorem 2 of Pruss 2017 is suggestive of this judgment, though it applies only to finite cases with real-number probabilities). However, this objection, if correct, leads to a different problem for someone who denies the explanatory principle. If we cannot say that it is likely or unlikely that objects would come into existence *ex nihilo*, we cannot make practically important predictions of the future. For instance, if it is not unlikely that tomorrow there should pop into existence vast numbers of microbes that kill everyone who had an aspirin, then one cannot judge that taking an aspirin for one's headache is likely to benefit one. Moreover, Pruss (2017) uses the idea that there are no meaningful probabilities assignable to unexplained contingent events to argue for a Principle of Sufficient Reason that would entail our more modest explanatory principle.

Here is a final reason in support of the explanatory principle. The principle allows us to avoid positing a seemingly arbitrary boundary between contingent states that have an explanation and those that don't. Suppose, for instance, that Albert exists because of antecedent causal factors. And suppose that Suzy exists without any antecedent causal factors. We may ask: why does Albert get to enjoy a causal explanation of his existence, whereas Suzy does not? It is plausible that the answer to this question would be in terms of some substantial *difference* between Albert and Suzy. So, for instance, suppose Suzy exists *of necessity*. In that case, it may be reasonable to suppose that Suzy is just the sort of thing whose existence *couldn't* be explained—at least not in terms of prior causal conditions. But suppose Suzy does not exist of necessity. Then it is not so clear how to account for why Suzy's existence but not Albert's lacks an explanation.

Suppose Suzy and Albert are both material objects. Then they presumably both occupy some positions in space and time: they both have a spacetime profile, we might say. But how can a difference with respect to a spacetime profile account for a difference with respect to having an explanation? It is hard to see how. It seems that differences in location or in shape or in temporal duration are differences in mere *degree*—degree of size, degree of complexity, degree of age, etc. None of these differences in degree, however, seems to make a categorical difference with respect to *requiring an explanation*. It may seem, therefore, that if Albert should have an explanation, then any other spatial-temporal object should, too. More generally, it may seem that if a contingent state of existence *E* has an explanation, then any other contingent state of existence does as well. The reason, in summary, is that no mere difference

with respect to spatial-temporal properties, or any other non-modal properties, would seem to adequately account for a difference with respect to explicability. *Contingency* makes the relevant difference, one might think. (Alternatively: nothing makes a difference because every state of affairs whatsoever has some explanation.)

Of course, if one thinks that there can be uncaused contingent things, one will probably think that not all explanatory questions have answers, and hence one may think that among these is the question of why Suzy but not Albert has a cause. However, it counts against a theory that it multiplies questions to which there are no answers. And in the case of Suzy and Albert, it is plausible that there *would* be some answer as to why the one has a cause and not the other; there would be some relevant difference between them, it seems.

We have just conveyed a few reasons why someone *could* find the explanatory principle plausible independently of particular prior beliefs about necessary beings. Any of the reasons given may, in principle, be defeated by additional considerations. (We will consider some potential defeaters in Section 3.4.)

Let us now turn to the second premise: considering all the contingent concrete things that exist, if there is an explanation of the fact that *those things exist*, then there is a necessary concrete thing. (In symbols: $[\exists xs(EE(xs) \wedge \forall y(C(y) \rightarrow y \in xs))] \rightarrow \exists yN(y)$.) This premise is about *all* the contingent concrete things there are. It says that if their joint existence has an explanation, then there is some necessary concrete thing. We will refer to the state of affairs of *the actual contingent things existing* as ‘the Big Contingent State.’ Premise (2) records the thought that the Big Contingent State can’t be adequately explained apart from the causal activity of one or more non-contingent things. This thought is rooted in a general principle: no facts about the existence or activities of contingent instances of *F* can, by themselves, explain why *there exist* those things that are *F*. To be clear, the *Fs* may also be *Gs*, and perhaps their being *G* explains their being *F*; even still, their being *G* doesn’t explain their very existence; an external explanation is required.¹¹ Premise (2) falls out of an instance of the general principle: specifically, no facts about the existence or activities of

¹¹ In case the reader wonders if *Fs* that exist *now* could be explained by *Fs* that *did* exist, let us clarify that “the *Fs*” includes any and all *Fs* that *ever exist* (which includes the future if there is any). So, we cannot explain the existence of the *Fs* merely by citing the activities of past *Fs*. (We are assuming here that it makes sense to talk about past *Fs*. If that assumption

contingent instances of *being contingent and concrete* can, by themselves, explain why there exist those very contingent concrete things.¹²

Consider that no matter how many *Fs* there are and no matter how those *Fs* might be causally connected, we may ask, “Why do *these Fs* exist rather than others or none at all?” Our curiosity seems to suggest that no facts about the existence or activities of particular contingent *Fs themselves* adequately explain why there are those very *Fs* in the first place. We may wonder, for instance, why some particular turtles are sitting on the porch. We may have facts *about* the turtles—about how they are causally connected, say. But we do not yet know why the turtles exist in the first place. More to the point, if there *were* an explanation of the contingent things, this explanation would make reference to one or more non-contingent things.¹³ (We will address a Humean objection to this conclusion in Section 3.4—see Objection 3.)

Might the Big Contingent State be explained by the fact that it *must* obtain? The answer is ‘no.’ The Big Contingent State consists entirely of contingent things. So if *any* contingent thing were absent from reality, then the Big Contingent State would not obtain, for the Big Contingent State is defined by rigid plural reference to each and every actual contingent thing. Each *contingent* thing is possibly absent, of course. Therefore, the Big Contingent State does not necessarily obtain.¹⁴ It seems, then, that the Big Contingent State can be explained only by the causal activities of one or more things external to the state itself.

It is worth adding here that the arguments we gave for the explanatory principle get their life from a notion of explanation on which explanations run outside the explanandum. For example, we observe that the iPhones

is false—perhaps because of a version of presentism being true—then a fortiori we cannot explain the existence of the *Fs* by citing the activities of past *Fs*.)

¹² Notice that we are not asking for an explanation of the fact that there are *any* contingent things at all. Thus, we avoid many of the issues that arise in discussions over the question of why there is anything. For instance, there is no need here to engage Maitzen’s recent proposal (Maitzen 2013, pp. 252–71) that the fact that there is anything is (trivially) explained by the fact that there are penguins.

¹³ Clarke (1705, p. 11) classically argues that the alternative is, in his words, “very absurd.”

¹⁴ The Big Contingent State isn’t even *likely* to obtain. Although it may be likely that there are *some* contingent things, it is presumably very unlikely that the *particular* things comprising our universe exist (assuming they are indeed all *contingent*). Moreover, if it were likely for any particular thing to exist uncaused, then we run into the problem of avoiding chaos (discussed in Section 3.3).

have an explanation in terms of things other than iPhones. So even if there were some minimal or ad hoc notion of explanation on which the existence of some contingent things somehow ‘explains’ their own existence,¹⁵ it wouldn’t be the relevant notion.

3.4 Objections

We have just articulated the main reasoning behind a version of the Argument from Contingency. We will now consider what we take to be the most challenging and important of objections to this sort of argument. We will begin with classical objections by David Hume and Immanuel Kant, and then survey more recent objections.

3.4.1 *Objection 1 (Hume)*

The argument is unsound because its conclusion is inconceivable. The conclusion was that there is a necessary concrete thing. Yet, the concept of “necessary existence” cannot apply to anything in reality because anything that can be conceived of as existing can be conceived of as not existing (Hume, 1779, p. 164).

Reply: This conceivability-based objection targets ACE’s conclusion. We will devote an entire chapter to dealing with this sort of objection: see Chapter 9. For now, we will make two brief points. First, it is unclear what is meant by “conceive as not existing.” Can we conceive of *numbers* as not existing? If we can, must we thereby infer that the non-existence of numbers is metaphysically possible, as Hume’s objection suggests? Many will find that implausible.

Second, Hume’s objection faces a parity problem, given a certain plausible and widely-held modal logic. Suppose that Hume is right that whatever can be conceived of as existing can be conceived of as not existing. And suppose that a necessary concrete thing *N* can be *conceived of* in the relevant sense. (There is also the option that a necessary being is inconceivable, and we will discuss that option in Chapter 9.) Then either conceivability implies or gives evidence for possibility, or it does not.

¹⁵ For example, one might suppose that if *p* explains *q*, then $p \wedge r$ explains $q \wedge r$, and furthermore that if *a* causes *b*, then *a*’s existence explains *b*’s existence. Then, strangely, the conjunction of *a*’s existence and *a*’s existence explains why *b* and *a* both exist. But that’s not the sort of explanation at work in our arguments or in ordinary reasoning.

If conceivability does not provide evidence for possibility, then Hume's objection doesn't get going: for then there are no grounds for inferring that *N*'s non-existence is possible. So, suppose instead that conceivability provides evidence for possibility. Then since *N*'s existence is itself conceivable (per hypothesis), we have evidence that *N*'s existence is possible. And then, as we explained in Chapter 2 (Section 2.4), it follows that *N* exists. In other words, if we assume the conceivability of a necessary being, then the very assumptions behind Hume's objection, together with an independently plausible principle of modality, actually give evidence for the existence of a necessary concrete thing, and thus the objection washes out, providing both evidence for and evidence against such a thing. (Of course, this second point won't appeal to those who do not accept the relevant modal logic and who are unimpressed by the arguments we gave for that logic in Chapter 2, Section 2.3.)

3.4.2 *Objection 2 (Hume)*

Suppose the concept of necessary existence is coherent. Then why couldn't a *material* thing have a quality such that its non-existence is metaphysically impossible? (Hume, 1779, pp. 164–6).

Reply: This objection calls into question the *significance* of ACE's conclusion. If matter or energy can be necessary, then we have not arrived at the existence of something that provides a transcendent explanation of the cosmos.

We have two replies. First, the conclusion of the argument is significant even if there are *material* necessary concreta. For suppose ACE is indeed sound. Then reality has a necessary foundation that provides an ultimate explanation of contingent reality. This foundational view of reality encourages confidence in the causal order of our universe. Moreover, it has far-reaching ramifications concerning what sort of things can exist: for instance, it implies that *concrete existence* is compatible with *necessary existence*. The foundational view also implies the falsity of the contentious thesis that there might have been nothing. So, whether the foundation is comprised of particles or immaterial minds, the thesis that there is a necessary foundation of some sort is philosophically significant.

Second, the inquiry into the nature of a necessary foundation is all the more interesting if there is reason to think that there really is such a foundation. Consider, for instance, that a necessary concrete foundation

is plausibly a causal foundation *in every possible world*, since the premises of ACE are plausibly necessary truths if they are true at all. If that is right, then *any* and *every* genuinely possible contingent object must have its ultimate explanation in terms of the necessary foundation, where the necessary foundation is the fusion or plurality of any and all necessary concreta. This foundation must therefore house extraordinary causal power. Indeed, it seems its power cannot be limited, since it is *necessarily* the source of all power—and there seems to be no limit to how much power is metaphysically possible.¹⁶

Moreover, some philosophers of mind, such as Chalmers (1996), think that the best way to account for the emergence of consciousness is to suppose that fundamental reality enjoys proto-conscious properties. These philosophers may have reason, then, to think that a necessary foundation would contain *unlimited* (proto-)cognitive resources: for the foundation would be the ultimate foundation of every *possible* configuration of consciousness. It seems, therefore, that the question of the ultimate origin of consciousness takes on new significance if there is a necessary foundation. At the very least, then, the conclusion of ACE opens up new and intriguing avenues for further investigation.

3.4.3 *Objection 3 (Hume Again)*

Let us turn to another famous Humean objection. The objection is based upon the following question: why think that an explanation of a *whole* cannot simply consist of whatever explains each *part* (Hume 1779, p. 167)? More specifically, why can't an explanation of the contingent *cs* simply consist of the conjunction of the explanations of *each c*? Then there would be no need for a non-contingent cause.

To draw out the objection, consider the famous “Eskimos” example given by Edwards (1959). There are some Eskimos on the corner of Sixth Avenue and 50th Street, and for each Eskimo, there is an explanation as to why that Eskimo is at that corner. Edwards suggests that the individual explanations join together to explain why *all* those Eskimos are there. No further explanation is required. The parallel is clear: if the existence of each contingent thing is causally explained by another contingent thing *ad infinitum*, then the existence of each contingent thing

¹⁶ Cf. Gellman 2000.

is thereby explained. No *further* explanation of the existence of contingent things is required. Perhaps, then, an adequate explanation of contingent things can be given in terms of those very contingent things, after all.

Reply: We should be careful to distinguish this objection from a related Humean objection. The objection on the table is that if each member of a series has an explanation, then the explanations of the members constitute an explanation of the whole. Here is a related objection: there is no need for an explanation of a series of things because each member of the series already has an explanation. These objections are importantly different. The latter says there is *no need* for an explanation of the whole, whereas the former says that an explanation of a whole may be given entirely in terms of explanations of its parts. We are concerned with the former objection here. (We will address the other objection in our discussion of Objection 4.) Unlike the latter objection, the former challenges the premise that *if* there is no necessary concrete thing, then there is an *unexplained* state of contingent existence. The objection, then, is that perhaps there can be an explanation of the fact that there are the contingent things (the “whole” fact) entirely in terms of particular explanations of particular contingent things (the “parts” of the fact).

Is the objection sound? Can an explanation of the “whole” be solely in terms of explanations of the “parts”? We suggest that the right answer is ‘yes, but only sometimes.’ In the case of the Eskimos, it does indeed seem that an explanation of why each Eskimo is on a certain street corner can suffice to explain why they are all there. But consider a different situation. Suppose that the *existence* of each Eskimo is explained solely by the causal activities of another Eskimo. In this case, either the chain of explanations is circular, or it is infinite. Both options result in a wholly “internal” explanation. That is to say, in either case, *that those Eskimos exist* is explained solely by the *activities* of those same Eskimos. In this situation, it seems we can still wonder why there are *those* Eskimos at all. The “internal” explanation is not nearly as adequate as an explanation that involves something *other than* the very Eskimos to be explained.

Let us examine the matter further by considering another case. Suppose we encounter a snake and learn somehow—don’t ask how—that it has grown by undergoing an infinite number of stages of development. The growth process has occurred as follows: the front half of the snake was caused by events within an adjacent quarter section of it, which in turn was caused by events within an adjacent eighth section, which in

turn was caused by events within the preceding sixteenth section, and so on, so that each section was produced by events within an adjacent section half its size. In this scenario, each part of the snake was caused by events within another part, *ad infinitum*. We make no assumptions about how long this production has been going on: maybe the snake has been growing from eternity past. Let us put aside for a moment the question of whether or not this situation is genuinely possible. Ask yourself: if this situation *were* to obtain, would the causal connections between the snake's parts constitute an *explanation* of the existence of the snake itself? It may seem that the "internal explanation" doesn't suffice in this case. After all, it makes perfectly good sense to wonder why there is this snake, rather than a different one or none at all. The fact that its parts are causally connected to each other is beside the point. The causal connectedness of the snake doesn't seem to explain why the snake exists in the first place.

The snake example suggests that an adequate explanation of the existence of some *x*s doesn't *automatically arise* from the supposition that each *x* has a cause. Each snake part has a cause in terms of another snake part, yet one may still wonder why those very snake parts all exist at all. Edwards' original Eskimo scenario is different because the causes aren't themselves all members of the very class of effects to be explained. This difference is relevant, for it is relevant that this explanation is wholly "internal" to the very facts to be explained. It seems some part of the explanation must, instead, be in terms of things, events, or states that aren't "internal to" the wholly contingent¹⁷ fact to be explained (the explanandum). Call this response to the Humean objection 'the No Internal Explanation Reply.'

Note that the snake case is not all that outlandish. It is widely accepted that time is continuous, or at least could be. Suppose that time is continuous and a particle came into existence right after noon, so that for all times $t > \text{noon}$ the particle exists and for no time $t \leq \text{noon}$ does the particle exist. Let $S(t)$ be the state of the particle existing at time t . Suppose, as may well be the case that, for a time $t > \text{noon}$, there is an earlier time t' such that $t > t' > \text{noon}$ and such that the particle's

¹⁷ Perhaps some necessary facts, such as the fact that $1 = 1$, are self-explanatory. In this case, a fact that contains a necessary fact might have an internal explanation: the contingent parts could be explained by the necessary part and the necessary part could be self-explanatory. But that is not the scenario the Humean is considering here.

existing at t' explains why it exists at t . Thus, the particle's existence states $S(t)$ are such that each of the states is explained by another of the states. Hence the whole sequence of existence states of the particle is explained according to Hume's principle. But surely this is mistaken. If the particle was caused to exist in the first place, then that sequence of existence states is explained by that cause and not by itself. If the particle was uncaused, then the sequence is unexplained. This intuition supports our No Internal Explanation Reply.

It seems to us, therefore, that the No Internal Explanation Reply poses a significant challenge to the Humean objection. Here are three further considerations that amplify the challenge. First, in any case where the x s are merely causally connected to each other, it still makes perfectly good sense to ask why those x s exist: we may still wonder why there are those causally connected x s in the first place. Suppose instead we know that the x s were all produced by a factory, say. Then it no longer makes sense to wonder why they exist; we already know why. But without an external cause of some kind, we remain curious. And the fact that we may still wonder why the x s exist suggests that their causal connectedness doesn't *by itself* suffice to explain why they exist. An external explanation is called for.

Second, a fact about the *existence* of things would seem to be explanatorily prior to any fact about the *activities* of those same things. In a slogan: being precedes doing. The thought here is that an infinite series of *productions* is, in total, posterior to the infinite series of *producers*. In other words, a complete fact about all the productions is explanatorily posterior to a complete fact about the existence of all the producers themselves. Why are there *these things*? Citing activities of those very things doesn't seem to adequately answer that question, for there would not be those very activities if there were not "already" those very things. (Of course, *each* thing may be preceded by an activity of a prior thing. But the point here is that the *total* "producers" fact does not seem to be explanatorily preceded by a total "production" fact.)

Third, the No Internal Explanation Reply makes good sense of our intuitions about wholly "internal" explanations. Take, for instance, an infinite stack of monkeys. Suppose the monkey stack is two feet off the ground—hanging. 'Why are they there?' you wonder. Someone tells you that the monkeys are located just where they are for the following reason: each monkey among them is hanging desperately onto the one

just above it. Does that answer satisfy your curiosity? Presumably not. But *why not?* The No Internal Explanations Reply provides a straightforward answer: the explanation of each location of each monkey in the stack is wholly *internal* to the fact that the entire monkey stack is located where it is. The problem with the monkey stack, we suggest, is that there cannot be an explanation of a contingent fact that is wholly “internal” to that very fact. This answer makes sense of our intuitions regarding the monkey stack. By forbidding wholly internal explanations of contingent facts, we neatly rule out certain cases of seemingly absurd explanations.

In light of these considerations, we suggest that the Big Contingent State (the contingent state consisting of the existence of all contingent concrete things) is not plausibly explained solely in terms of facts about the activities of the contingent concrete things. If the Big Contingent State has an explanation at all, it seems the explanation is not going to be wholly internal to the Big Contingent State itself. That is to say, there has got to be at least one non-contingent thing capable of causing at least one contingent thing to exist.¹⁸

3.4.4 *Objection 4 (More Hume)*

ACE commits the fallacy of composition. The argument requires a cause of all contingent reality. But it makes no sense to ask for a cause of the *whole* of all contingent things, since the uniting of parts into a whole is merely a mental abstraction which does not apply to reality (Hume, 1779, p. 167). So, even if we are justified in thinking that each contingent thing has a cause, we are not thereby justified in inferring that the group of all contingent things *taken together* has a cause.

Reply: As an initial reply, recall that *our* version of the argument does not require that there be any such thing as a whole of all contingent things. We cast our argument in the language of plural quantification. So, technically, our argument doesn’t commit the fallacy of *composition*: we don’t require that anything composes anything at all.

¹⁸ To be very clear, when we say that the *xs*’ existence cannot be explained in terms of those very *xs* alone, we do not thereby rule out the possibility that some *xs* are explained in terms of their parts. So, for example, if a contingent concrete thing consisted of a fusion of contingent concrete things and a necessary concrete thing, then this contingent fusion might be explained in terms of the activities of its parts. There is no circularity if its parts include something that isn’t itself among the things whose existence is to be explained.

However, the Humean may still object as follows. ACE requires that the *plurality* of all contingent things has an explanation. But why think such a plurality has an explanation? How do we move from the premise that *each* contingent thing has an explanation to the conclusion that there is an explanation of *all* contingent things taken together? (Note: this objection is different from the Humean objection that by explaining each thing we have thereby *explained* the plurality. We had given a No Internal Explanation Reply to *that* objection. The objection here is that a plurality may lack an explanation altogether.)

What shall we say in response? We answer that *individuals* are not relevantly different from *pluralities* with respect to explanation. Suppose, for instance, that you encounter a sphere in a forest. Naturally, you are curious: why does that sphere exist? But now suppose you are persuaded by reading Merricks's (2001) *Objects and Persons* that there are no composite inorganic objects. So, you infer that this "sphere" is either a giant (extended) simple, or "it" is nothing more than smaller things arranged sphere-wise. In either case, you may equally well wonder why there is a sphere-like reality before you. Merricks's arguments for restricted composition don't remove your curiosity about where the sphere came from. If the sphere is a big simple, you may wonder why there is this big contingent individual. And if, instead, the sphere is nothing but small simples arranged sphere-wise, you may wonder why those small simples jointly exist and are arranged sphere-wise. Contingent pluralities call out for an explanation *no less* than contingent individuals.

For another illustration, consider our solar system. It certainly makes sense to ask what caused the solar system to exist, *even if* we don't consider the solar system to be a *thing* over and above its parts. One might think of a "solar system" as a plurality of things arranged solar-system-wise (see van Inwagen 1990). It doesn't matter how many stars the solar system includes or how fast it is rotating. In any case, it makes perfect sense to ask why the solar system exists. More generally, for any arrangement of contingent things, it makes perfect sense to ask what caused *that* arrangement and its contingent parts to exist.

Recall the four reasons we gave in support of the explanatory principle: (i) inductive generalization, (ii) a priori intuition, (iii) avoiding chaos, and (iv) avoiding arbitrary breaks in explanation. These reasons apply equally to pluralities and to individuals. Consider, first, inductive generalization.

We don't look merely for explanations of *individual* things. We also identify explanations of pluralities, such as a pile of fossils or a group of stars. Thus, if inductive generalization is warranted with respect to individuals, it seems it may also be warranted with respect to pluralities. Moreover, consider a priori intuition. If the existence of a sphere, say, intuitively calls out for an explanation, then surely the joint existence of (say) seven spheres *also* calls out for an explanation. Concerning the prospect of chaos, if the possibility of individuals existing without any explanation makes chaos likely, then unexplained pluralities make chaos likely. And regarding explanatory breaks, it may seem just as arbitrary to suppose that *some*, but not all, contingent pluralities lack an explanation as it is to suppose that some, but not all, contingent individuals lack an explanation. If explanatory breaks with respect to individuals are problematic, it is unclear why they should automatically be any less problematic with respect to pluralities. Pluralities don't seem relevantly different from individuals.

We should emphasize that the plurality of *all* concrete things cannot have the sort of external explanation that other pluralities evidently have: such a plurality includes all of concrete reality, after all, leaving nothing "outside" it that could help to causally explain its existence. So, we recognize that there must be a plurality that has no explanation in terms of external causes. But this result poses no problem for our argument. Quite the opposite: our argument makes sense of *why* the totality of *all things* has no external cause of its existence. There is no external cause of *all things* because a "portion" of that plurality exists necessarily and so *can't* have a cause.¹⁹ Without a necessary, uncaused foundation, by contrast, we are left with a mystery: how could a difference between contingent *individual* and contingent *plurality* make a difference with respect to why the individual has an external cause but not the plurality? The existence of a necessary foundation provides a helpful answer to this question.

¹⁹ Consider the alternative. If concrete reality consists entirely of *contingent* things, then it isn't at all clear why this purely contingent plurality could not be caused by things within a larger reality. We can imagine, for instance, another world in which certain particles and forces are causally responsible (throughout time) for the cosmos of our reality. There doesn't seem to be anything intrinsic to a contingent cosmos that makes it *uncausable*. So, why would contingent reality lack a cause?

3.4.5 *Objection 5 (Hume Once More)*

We are not justified in thinking that contingent things must have a cause because there is no contradiction or absurdity in there being a contingent thing that has no cause.²⁰

Reply: This objection may remind the reader of the conceivability-based objection against the existence of a necessary being. Both objections depend upon the following premise: if we can conceive of *not p*, then *p* is not metaphysically necessary. So, since we can conceive of something lacking a cause, it is possible that some contingent things lack a causal explanation.

We have a two-pronged reply. First, Hume's assumed premise is subject to counterexamples. Consider, for instance, the following principle: necessarily, no fundamental substance exactly overlaps a distinct fundamental substance of the same kind. Someone could surely find this principle plausible despite the fact that its negation is not self-contradictory or inconceivable. Or consider the *perdurantist* theory that objects have temporal parts. Perdurantists typically think that perdurantism is necessarily true. But perdurantists don't normally argue against the endurantist alternative on the grounds that endurantism is flatly contradictory or simply inconceivable. So, it is not at all clear that just because a principle can be conceived to be false, the principle thereby fails to be metaphysically necessary.²¹

Charitably, then, Hume's premise should be emended to be that *normally* possibility follows from conceivability—the inference is defeasible. But the reasons we gave in support of the explanatory principle can constitute a good reason to think that uncaused contingent existence is not genuinely possible *even if* it is conceivable, and hence they can provide a defeater for the inference. Recall, for instance, just the argument from chaos. We argued that if contingent things could exist without an explanation, then it would be possible for any arbitrary contingent things to exist at any time and place. Furthermore, the *probability* that macro-

²⁰ Hume (2007, 1.3).

²¹ One might wonder whether Hume's premises can *themselves* be conceived to be false. If they can, then if Hume is *right* that whatever is conceivable is metaphysically possible, it follows that it is metaphysically possible that Hume's premises are false. In that case, we may run ACE in a world at which Hume's premises are false and thereby deduce the *possibility* of a necessary being. Then, given S5, we may infer that there is a necessary being. We owe this consideration to Luke van Horn.

level chaos ensues would plausibly not be low: the simplest views are that the probability is 1 or undefined. Yet, such chaos most definitely does not occur. The best explanation of this lack of chaos, one might think, is that uncaused, unexplained contingent existence is impossible. Hume's objection doesn't give us any reason at all to think otherwise. More generally, the mere conceivability of the falsity of the explanatory principle does nothing to defeat the *arguments* given for that principle. We suggest, therefore, that conceivability considerations don't by themselves suffice to refute the explanatory principle.

3.4.6 *Objection 6 (Kant)*

The cosmological argument ultimately relies on the *ontological* argument. The ontological argument purports to show that the existence of a necessary being is deducible a priori via reflecting upon our concepts, such as our concept of a perfect being. But if ontological arguments fail, as many think, then so must every other argument for a necessary being. That's because if there were a necessary being, then its existence would, by definition, be deducible a priori, just as the ontological argument asserts. Kant put the objection this way:

It is clear that absolute necessity is an existence from mere concepts. If, then, I say that the concept of [a perfect being] is such a concept, and is the only concept adequate to necessary existence, I am bound to admit that the latter may be deduced from the former. The whole conclusive strength of the so-called cosmological proof rests therefore in reality on the ontological proof from mere concepts (Kant and Müller, 1907, p. 489).

Kant later adds, "If in this way the possibility of such a Being has been perceived, its existence also has been proved" (*ibid.* pp. 489–90).

It will help to tease apart two related objections. One objection builds upon an epistemic premise: a necessary being is the sort of thing whose existence is, by definition, *knowable* a priori. The other builds upon a metaphysical premise: a necessary being is the sort of thing whose existence is, by definition, entailed by the very possibility that it exists. We aren't concerned with the epistemic premise, for our definition of 'necessary being' includes no epistemic conditions. The metaphysical premise is relevant, however, because we said that a necessary being is an entity that is *metaphysically* necessary and that, given certain modal axioms, would exist were its existence possible. So, we may summarize the relevant Kantian objection as follows: any cosmological argument for

a necessary being presupposes the controversial premise that a necessary being is possible.

Reply: We deny that one must recognize a priori that a necessary being is possible in order for one to be rationally persuaded by an argument for the existence of a necessary being. Things may be different if metaphysical possibility reduces to logical coherence (strict logical possibility). But as we argued in Chapter 2, Section 2.2, there are post-Kantian reasons to doubt this reduction. We suggest, therefore, that someone could be agnostic about whether the existence of a necessary concrete thing is *metaphysically* possible and yet be rationally persuaded to accept ACE's premises. Once one sees that the premises may be used in a cogent argument for the existence of a necessary concrete thing, one may *then* infer that a necessary concrete thing is both actual and possible. We conclude that Kant's objection leaves open the option that a cosmological argument provides an *independent reason* in support of the ontological argument's controversial and crucial premise that a necessary being is possible. Developments in modal logic help us perceive this option more clearly.

3.4.7 Objection 7 (Kant)

There is no such property as *existence* (cf. Kant and Müller 1907, p. 483). Similarly, there is no such property as *necessary existence* or *contingent existence*. Yet ACE mistakenly presupposes that contingent existence is a genuine feature of things. Hence, the argument fails.

Reply: Contemporary modal logic enables a helpful reply to this objection. Using modal logic, we may express propositions about contingent and necessary things without presupposing that there is any such property as *existence*, *necessary existence*, or *contingent existence*. So, for example, we may translate 'C exists contingently' as: $\sim \Box \exists x(x = C) \ \& \ \exists x(x = C)$; and, in a free logic, we even have an existence predicate so we can say: $\sim \Box E!(C)$. Once we see how to express ACE with perspicuity using the language of contemporary logic, thereby bracketing questions about whether there is a property of existence, Kant's objection falls by the wayside.

3.4.8 Objection 8 (Graham Oppy, William Rowe, Peter van Inwagen)

ACE makes use of an explanatory principle that is akin to the controversial Leibnizian principle that every contingent fact whatsoever has an explanation. It may seem, however, that any inclination to believe the

weaker principle ultimately arises from an inclination to believe Leibniz's more general principle. The problem here is that there is a counterexample to Leibniz's principle. The counterexample is this: the conjunction of *all* contingent facts. This conjunction is contingent but can't be explained, since (i) no *necessary* fact can explain a contingent one, and (ii) no contingent fact can explain the conjunction of *all* contingent facts without circularity. We should doubt, therefore, that Leibniz's general principle of explanation holds true. And doubts about the general principle inspire doubts about its weaker cousin.²²

Reply: We have two replies to offer. First, we will outline a *defense* of the more general principle that every contingent fact whatsoever has an explanation. (For more than an outline, see Pruss 2006.) Second, we will suggest that even if the general principle fails, one can be justified in restricting the principle in certain natural ways.

Let us begin by defending the general Leibnizian principle that every contingent fact has an explanation. The argument against Leibniz's principle is that it cannot account for the *biggest* contingent fact, which let us say, is a contingent fact that entails all others. Call this fact 'the Big Fact.' (We will assume for simplicity that there is exactly one fact that entails all contingent facts.) Here is a more detailed outline of the standard reason to think that the Big Fact cannot be explained:

- (7) Whatever explains the Big Fact is either contingent or necessary.
- (8) The Big Fact cannot be explained by something contingent (else circularity).
- (9) The Big Fact cannot be explained by something necessary (else the Big Fact would be necessary).
- (10) Therefore, the Big Fact cannot have an explanation.

The crucial premises are (8) and (9), and we'll consider them in order. Premise (8) says that there cannot be a contingent explanation of the Big Fact. The justification for (8) derives from the following two premises:

- (11) Any contingent fact that explains the Big Fact is wholly included within the Big Fact itself, resulting in a circular explanation.
- (12) There are no circular explanations.

²² See van Inwagen (1983, pp. 202–4), Rowe (1998, pp. 103–11), and Oppy (2009a, pp. 37, 39–40) for representative examples.

Premise (11) may seem to be true by definition, for the Big Fact includes *every* contingent fact by definition.²³ And premise (12) is plausible because circular explanations are plausibly *impossible*: for instance, no chicken can explain its own existence, it seems.

Turn next to (9): the Big Fact cannot be explained by something necessary. One argument for (9) is based upon the premise that, in general, explanations must necessitate their explananda. For suppose explanations necessitate their explananda. Then a *necessary* explanation of the Big Fact would render the Big Fact *necessary*. The Big Fact is not necessary (by definition), however. Therefore, no necessary fact explains the Big Fact. (We will consider a different argument for (9) in a moment.)

Now someone might resist the premise that explanations must necessitate their explananda. Earlier we suggested that explanations may be merely partial and thus non-necessitating. Indeed, most if not all the “explanations” given in science are like this (cf. Salmon 2006). For example, scientific explanations can be stochastic and hence non-entailing. If so, then it may be possible, in principle, for a necessary fact to *explain* the Big Fact without *entailing* the Big Fact. So, the reason just given to accept (9) need not convince everyone.

Nevertheless, even if indeterministic explanations are possible, there is a more powerful way to motivate (9). Consider the following reasoning. Let *N* be a necessary fact that explains the Big Fact, and let *E* be the fact that *N* explains the Big Fact. So, *E* is the *explanatory link* between the necessary first cause and the Big Fact. Now *E* is itself either necessary or contingent. Fact *E* isn’t necessary, since otherwise the Big Fact would be necessary (which it isn’t). Therefore, *E* is contingent. Now if *E* is contingent, then *E* is included within the Big Fact. The result is that *N*’s

²³ We have simplified things a bit for the sake of presentation. Complexities arise when we consider what it means to be “included” within a fact. Consider the fact that the angles of a triangle add to 180 degrees. There does not seem to be any serious problem with supposing that this fact is explained by the axioms of geometry. But notice that the explanation here is broadly logically *entailed* by the explanandum. It seems, then, that there is no problem, in principle, with supposing that an explanandum entails its explanation. The kind of “inclusion” involved in (11), by contrast, is not mere entailment. What is the nature of the inclusion? To answer that question, we may spell out (11) more precisely as follows: any contingent fact that might explain the Big Fact would be wholly *part of* (a conjunct of) the Big Fact itself, *unless* some part of the explanation is a necessary fact. For the sake of presentation, however, we will work with the simpler premise, since (11) is not the target of our critique.

act of explaining the Big Fact is among the very facts that N explains by that very act. The explanation here is thus circular. We take this reasoning to be an especially potent argument for (9).

That reasoning is too quick, however. Circularity results *only if* the following is true: E is itself foundational to—or part of—the explanation of the Big Fact. It is this assumption (or something in the neighborhood) that allows us to deduce circularity: for if E is foundational to the explanation of the Big Fact, then E is explanatorily *prior to* the Big Fact, despite being *included in* the Big Fact. We think this assumption is mistaken.

Let us call this assumption, that E (the explanatory link between the necessary first cause and the Big Fact) is part of the explanation of the Big Fact, ‘the Critical Assumption.’ The problem with the Critical Assumption, as we see it, is that N may itself contain the ultimate explanation of *every* part of the Big Fact, E . Here is a story, called ‘Ultimate Explanation,’ about how this explanation might work:

Prologue: Assume for simplicity that N contains (or entails) every necessary fact.

Chapter 1: Explaining the Cosmos. Once upon a time, certain necessarily existent particles indeterministically changed position in accordance with certain necessary probabilistic laws.²⁴ How is that? The particles enjoyed an original state, such that no other starting state was metaphysically possible. Now the particles essentially have *tendencies* to change in certain ways in certain positions. And these tendencies provided a non-necessitating, partial explanation of why the particles changed in the ways they did at each position. The subsequent positions and motions of these particles then gave rise to the contingent structure and evolution of the entire cosmos. As a result, certain necessary facts, which are included in N , provide an *ultimate* explanation of the contingent facts about the cosmos.

Chapter 2: Explaining the Explanations. The plot thickens. The contingent explanations given in Chapter 1 are themselves about to be explained. Let p_N be the necessary fact that a certain particle p has some tendency to shift to state β at time t_1 , given the necessary initial state α at time t_0 . And let p_C be the contingent fact that p shifts to β at t_1 . Moreover, we suppose that it is a necessary fact about these particles that nothing but p_N can cause p_C . In keeping with the previous chapter of the story, p_N provides a non-necessitating, partial (and perhaps *non-contrastive*) explanation of p_C . (Had p instead shifted to β_2 , say, then that would be because of the necessary fact that p has some indeterministic tendency to shift to state β_2 at time t_1 ; p may essentially have multiple tendencies simultaneously.)

²⁴ The story could instead be given in terms of necessary *fields* if you prefer.

Now for the crucial question: why does p_N explain p_C ? Part of the answer is that it is *impossible* for p_N *not* to explain p_C , assuming that p_C obtains: that is, necessarily, p_N explains p_C if p_C obtains. The other part of the explanation is that p_C obtains. (This proposal places p_C explanatorily prior to the fact that p_N explains p_C ; and p_N is prior to both. No circularity arises, therefore.) These two parts together jointly explain why p_N in fact explains p_C . The two parts are themselves explained by facts included in N : part one is explained by a necessary fact about explanation, and part two (that p_C obtains) is explained by p_N . The same sort of explanation arises for every fact of the form N explains C , where N is necessary and C is contingent. We thus avoid circularity: necessary facts lie at the foundation of all contingent facts about explanation.

And everyone lived happily ever after. The End.

We are not aware of any arguments in the literature that rule out the possibility of scenarios relevantly like Ultimate Explanation. And an advantage of Ultimate Explanation is that it enables an ultimate explanation of all contingent reality.

Ultimate Explanation also enables an alternative to the Critical Assumption—the premise that E (the explanatory link between the necessary first cause and the Big Fact) is part of the explanation of the Big Fact. According to the story, the ultimate explanation of the Big Fact includes necessary facts about the tendencies of particles at particular positions. These facts do their explanatory work ultimately (and indeterministically) because of necessary facts about the explanations themselves. This story precludes the Critical Assumption, since it places E in the Big Fact, not prior to it. It seems, then, that the Critical Assumption is not logically inescapable; there is another option. The upshot is that the Big Fact can have a perfectly coherent explanation, after all. In other words, Leibniz's general principle of explanation does not entail that everything is necessary.

But suppose we are wrong, and suppose Leibniz's principle has intolerable consequences, after all. Must we thereby harbor doubts about the restricted explanatory principle? It seems to us not. Consider, first, that contingent facts generally do have an explanation. If there are exceptions, they aren't cases we regularly encounter in ordinary experience. So, it is reasonable to look for a principle that can account for the many ordinary cases of explanation *even if* there are exceptions to Leibniz's general principle. Second, the explanatory principle restricts the scope to facts about contingent *existence*, and that restriction doesn't seem to be ad hoc. There is a deep and natural division between facts about

existence and facts about (say) *actions*. Perhaps some contingent *activities* are spontaneous and inexplicable. It may still be reasonable to suppose that every fact about contingent *existence* has an explanation in terms of prior causal activities. This proposal would allow us to make sense of a world that isn't completely chaotic: for example, arbitrary chunks of matter do not come to exist without an explanation, and the *actions* of things, even if spontaneous, are constrained by their causal capacities. We suggest, then, that an explanatory principle applied to the existence of contingent things is plausible, *whether or not* Leibniz's more general principle that applies to all contingent facts whatsoever is defensible.

3.4.9 *Objection 9 (Oppy and Leon)*

There are ways to account for the apparent instances of explanation in our world without appealing to any explanatory principle that implies the existence of a necessary foundation (Oppy 1999). So, for example, perhaps all *non-fundamental* contingent things have an explanation, while *fundamental* contingent things do not.²⁵ Maybe fundamental contingent things cannot be brought into existence via assembly because they lack proper parts that are separable. The basic elements may be point particles or fields, which cannot be built from more basic elements. We may say, then, that compound objects are explained by the activities of pre-existing materials. But non-compound materials can't be explained that way, since they aren't made up from any pre-existing materials. So, perhaps the divide between the explained and the unexplained coincides with the divide between the compound and the non-compound. This hypothesis is fully compatible with our experience. And it stops short of requiring that every contingent thing requires an explanation for its existence.

Reply: We offer a few replies. First, if non-compound particles or fields can exist without a cause, then it is puzzling why such things don't spontaneously come into existence all the time, or why there isn't an arbitrary, chaotic mess of eternal, uncaused contingent things of indefinitely many kinds. What we find instead is a universe composed of particles of a few basic types. The argument from chaos suggests that no contingent concrete things *of any kind* can exist without a cause or explanation.

²⁵ We owe this particular proposal to Felipe Leon.

Second, we should distinguish between *alternative* principles and *competing* principles. The principle that all non-fundamental contingent things have an explanation is fully compatible with our more general causal principle. It doesn't compete. So suppose you lack a reason to think that fundamental contingent things cannot be caused (because, for example, you lack a reason to think that there cannot be a necessary being that could cause them). In that case, any evidence you may have for the weaker principle could be counted as evidence for the simpler, more general principle, too. Compare: evidence for the proposition that all emeralds, not including the one in my hand, are green could be counted as evidence that all emeralds, including the one in my hand, are green. When the principles don't compete and one lacks independent reason to discriminate between cases, evidence for the one can be evidence for the other.

Third, a priori intuition doesn't discriminate between kinds of contingent things: a sphere, say, would seem to call out for an explanation *whether or not* it happens to be decomposable into smaller components. It is the *contingency* (or: sheer existence) of the sphere that seems to cry out for an explanation. Suppose, by contrast, that we somehow knew for sure that the sphere exists of necessity. Then although it may be deeply puzzling *how* something spherical could be necessary, it need not seem so puzzling *that* the sphere exists: it exists just because the alternative is impossible. We suggest, therefore, that although there are alternative explanatory principles to think about, it isn't clear that any principle provides a better explanation of the causal order than one that applies to all contingent things whatsoever.

Finally, our explanatory principle has the sort of theoretical virtues enjoyed by our most reputable and plausible scientific theories: (i) simplicity, (ii) predictive power, and (iii) empirical adequacy. We are not aware that any *competing* explanatory principle is superior in these respects.

3.4.10 *Objection 10*

The conclusion wed us to a less unified ontology. It implies, for example, that concreteness has two radically different kinds of instances: the contingent and the necessary. Moreover, facts about the existence of necessary things will lack the kind of external causal explanation that facts about contingent things enjoy. An ontology in which every concrete thing

is contingent would, by contrast, be simpler, cleaner and more elegant. Hence, we have independent reason to be skeptical that ACE is sound.

Reply: We concede that ACE's conclusion results in a more sophisticated ontology. On our ontology, concreteness has two kinds of instances—the contingent-and-caused and the necessary-and-uncaused. But consider that on many competing ontologies, concreteness has two kinds of instances—the contingent-and-caused and the contingent-and-uncaused. The only person who has a simpler ontology is the one who says individual concreta are always contingent and caused. But even then, there are uncaused pluralities—such as the plurality of all things.

Moreover, the extra sophistication has valuable payoffs. Most notably, it enables an ultimate explanation of contingent reality. Plus, one may find the premises of ACE independently plausible for the reasons we discussed. Thus, one might think the extra complexity is well worth the price.

Someone might object here that the benefit of explaining contingent reality is offset by our having no explanation of *necessary* reality. We reply, however, that the offset is not equal.

First, there is a tradition of supposing that some things exist precisely because they *must*: for instance, if the number 9 exists, it exists because it must (and *it must* because of certain more basic necessary truths).

Second, even if necessary reality is unexplained, the arguments we gave for thinking that *contingent* reality is explained don't easily generalize in a way that would apply to necessary reality. Take, for instance, the inductive argument. We regularly encounter contingent things being caused to exist. Yet, we don't encounter *necessary* things having a cause: how could we? Moreover, one might think that the regular absence of uncaused chaos is best accounted for by the impossibility of uncaused contingent existence (as we argued). But when it comes to the absence of uncaused *necessary* chaos (in the form of arbitrary configurations of matter, say), a different explanation is readily available: perhaps no arbitrary material configurations *could be* necessary. In light of these considerations, it is far from clear that one's reasons to think that contingent things have an explanation will generalize into reasons that apply to necessary things.

Here it is worth noting that while scientific progress continually brings us new clear examples of the explanation of contingent facts, there are few uncontroversial cases of the explanation of necessary facts. We suspect

that at least some necessary truths have an explanation, but identifying which ones these are is going to be difficult, much less arguing that they all do.

That said, we realize that ACE brings with it substantial metaphysical implications. And we realize that these implications may cause philosophers to hesitate to accept the conclusion of ACE. The argument enters deep and difficult waters. Even so, the argument invites us to at least consider whether contingent reality may in fact enjoy an ultimate explanatory foundation, especially if its premises are independently supportable.

3.5 Concluding Assessment

What shall we make of ACE? We think the argument has dialectical strengths and weaknesses. We begin with strengths. First, the argument appears to be defensible against traditional objections to cosmological arguments. It is sometimes thought (and taught) that cosmological arguments have been undone by, for example, the objections of Hume and Kant. We have seen that the story is more complex. Advances in modal logic, for instance, bring to light problems with certain Humean and Kantian objections, as we noted. We suggest, therefore, that ACE is not just a relic of history; the argument marks out a pathway to an intriguing conclusion that is worth investigation even today.

Second, ACE is adaptable to a variety of metaphysical frameworks. The argument is free from heavy assumptions about, for instance, the nature of contingent reality, the nature of explanation, the nature of modality and the nature of facts. So, for example, suppose you think that *events*, but not *substances*, can stand in causal relations. Then you may conceive of an explanation of contingent things in terms of events, as when events involving crystal formation produce gems. Or suppose you think infinite causal regresses are possible. That is fine as far as ACE is concerned. ACE is strictly compatible with a scenario in which the contingent and/or necessary portions of reality are knit together by an infinite causal series of states. Or suppose you are a modal realist: you think, for example, that possible worlds are genuinely existing causally-isolated spacetime realities. In that case, 'necessary existence' may be interpreted in terms of having trans-world counterparts in every world. So, for example, ACE would imply that each spacetime reality contains a causal foundation that has a counterpart in every other spacetime reality. Or suppose you

are a mereological nihilist: nothing has proper parts. Even still, you may wonder why there are the contingent simples that there are. The reasoning behind ACE is orthogonal to many of the current metaphysical debates. One benefit of ACE, then, is that it can potentially appeal to a relatively wide audience.

Third, although ACE-type arguments have a track record for generating highly complex and technical debates, the basic reasoning behind the argument is quite simple. The whole argument is inspired by a basic question everyone has asked: why is there anything at all? And the answer the argument provides is relatively simple: there is something because there *must* be something, and there must be something because there is something that *must be*. The simplicity and intuitive appeal of this answer suggest to us that *if* the answer is mistaken, the mistake is neither obvious nor easy to demonstrate.

On the other hand, ACE has a few weaknesses that we would like to draw attention to. First, the explanatory principle permits no possible exceptions. Some philosophers may be unsure, however, whether the principle must hold for *every* possible case. The worry here is especially pressing when one considers candidate counterexamples from (say) quantum mechanics. Although we suggested that ACE is fully compatible with causal indeterminism, we recognize that others may see the matter differently. They may think, for instance, that *if* indeterminism with respect to causation hasn't been ruled out, then for all we know, there may be uncaused contingent things, too. The point is that it may be difficult to be confident that uncaused contingent existence is outright *impossible*.²⁶

Second, ACE doesn't permit explanatory loops. An explanatory loop is a chain of explanations in which a member is an explanatory ancestor of itself. Although many philosophers may be perfectly content to grant the assumption that such loops are impossible, the philosophy of time literature suggests that there is controversy over whether *causal* loops are possible (see, for example, Hanley 2004). And if causal loops are possible, then premise (2) of ACE may be false, since then the Big Contingent State could perhaps be circularly explained in terms of a causal loop (though one might wonder if a causal loop would also be an explanatory loop).

²⁶ Cf. Oppy (2009a, p. 40).

Third, ACE is incompatible with a *wholly internal* explanation of the Big Contingent State. A wholly internal explanation is one given in terms of the activities or existence of the very contingent things whose existence is to be explained. We argued against the possibility of wholly internal explanations (recall the No Internal Explanations Reply). But our arguments are by no means knockdown.²⁷ Some philosophers may remain unconvinced, and those philosophers may therefore find ACE unpersuasive.

In light of these weaknesses, we are motivated to investigate alternative arguments for a necessary being. Therefore, in the course of the next five chapters, we will present five new arguments for a necessary being. As we shall see, all of these arguments avoid the three weaknesses we just noted: they permit uncaused contingent things; they permit explanatory loops; and they permit wholly internal explanations. It will be useful, therefore, to explore these additional pathways to the existence of a necessary being.

²⁷ For a discussion of what it takes for an argument to be knockdown, see Ballantyne (2014).

4

An Argument from Possible Causes

4.1 Introduction

In recent years, philosophers have developed *modal* versions of the cosmological argument.¹ A modal cosmological argument is a contingency-based argument that makes use of a premise about what *could* be caused (or explained). Such an argument doesn't require that every contingent thing (or event or fact) actually have a cause (or explanation). A modal cosmological argument requires instead just the *possibility* of a cause (or explanation). In this chapter, we will present one such argument and then consider objections and replies.

4.2 The Modal Argument from Beginnings

The argument we will present is called “the Modal Argument from Beginnings” (“MAB”).² Here is the argument:

- (1) Causal Principle: for any positive state of affairs *s* that can *begin to obtain*, it is possible for there to be something external to *s* that causes *s* to obtain.
- (2) A Possible Beginning: it is possible for there to be a beginning of the positive state of affairs of its being the case that there exist contingent concrete things.

¹ Examples include Leftow (1988), Gale and Pruss (1999), Rasmussen (2010), and Rasmussen (2011). Cf. Weaver (2013).

² The argument is inspired by the argument developed by Rasmussen (2011).

- (3) From a Possible Beginning to the Possibility of Necessary Existence: if (1) and (2) are true, then it is possible that there is a necessary concrete thing.
- (4) Therefore, it is possible that there is a necessary concrete thing.
- (5) From Possibility to Actuality: if it is possible that there is a necessary concrete thing, then there is a necessary concrete thing.
- (6) Therefore, there is a necessary concrete thing.

Here is an equivalent version in symbols:

- (7) $\forall x((P(x) \ \& \ \Diamond B(x)) \rightarrow \Diamond EC(x)).$
- (8) $\exists x\Diamond(B(x) \ \& \ (x = \textit{there being contingent concrete things})).$
- (9) $((7) \ \& \ (8)) \rightarrow \Diamond\exists xN(x).$
- (10) $\therefore \Diamond\exists xN(x).$
- (11) $\Diamond\exists xN(x) \rightarrow \exists xN(x).$
- (12) $\therefore \exists xN(x).$

We interpret the predicates as follows: ' $P(x)$ ' reads ' x is a positive state of affairs'; ' $B(x)$ ' reads ' x begins to obtain'; ' $EC(x)$ ' reads 'something external to x causes x to obtain'; ' $N(x)$ ' reads ' x is a necessary being'—i.e., ' x necessarily exists and is concrete (causally-capable)'. (As we explained in Chapter 1, we stipulate that a thing is "concrete" if and only if possibly, it causes something.)

A state of affairs is positive if and only if it specifies how things *are*, not how things *aren't*. So, for example, *its being the case that there is a coffee cup on my desk* is a positive state of affairs, whereas *my coffee cup having no lid* doesn't count as positive. The notion of "positive" need not be perfectly precise for our purposes, and isn't based on axiological considerations (as it will be in Chapter 8, where we deal with an argument from perfections). The advantage of focusing on positive states of affairs is that such states are familiar participants in causal explanations. (We leave it open whether negative states of affairs may also be causable.)

Before we have a closer look at the premises, let us clarify the meanings of the following terms: "begins to obtain," "external cause," and "possible." Start with "begins to obtain." We are familiar with beginnings in ordinary experience: the giraffe begins to eat, the leaves begin to fall, there begins to be a puddle of mud on the cement, etc. But to be more precise about the meaning of the term "begins to obtain," let us say that:

(13) Begins: A state of affairs *s* begins to obtain if and only if (i) there is a time at which *s* obtains, (ii) there is a time or finite interval of time *U*, such that there is no time prior to *U* at which *s* obtains, and (iii) *s* would not obtain without time.³

In short, a state of affairs begins to obtain if and only if its obtaining is restricted to a finite interval of time in the past direction.

Consider next the term “external cause.” As we noted in Chapter 1, we intend to use the term “cause” in a minimal sense to pick out anything that acts as an antecedent condition (or entity) responsible for some event. We leave specific theories of causation wide open.

An *external* cause is supposed to be a cause that isn’t *included* in its effect. To be more precise, let us say that a given cause *c* of *s* counts as *external* to *s* if and only if the following counterfactual fails to hold: if *s* were to fail to obtain, then *c* would fail to exist. On the standard view of the duality between “would” and “might,” we can rephrase this by saying that:

(14) Cause *c* is external to *s* iff *c* might still exist even if *s* were to fail to obtain.

So, for example, if a bird makes a nest *x*, the bird is an *external* cause of the state of affairs of *x* *existing* because the counterfactual

(15) If the state of affairs of *x* existing were to fail to obtain, then the bird would fail to exist.

fails to be true; the bird may exist whether or not it makes the nest.⁴ (A minor complication arises in the conceptually possible case of an external cause of a *necessarily obtaining* state of affairs. The relevant counterfactual—if necessary state *N* were to fail to obtain, then *c* would fail to exist—comes out *trivially* true on Lewis–Stalnaker semantics, for any *c*, since the antecedent is impossible. It follows, then, that there can’t

³ Clause (iii) is added in case there could be things, such as abstract objects, that exist during the earliest moments of time and that would exist whether or not time exists. If time is itself necessary, then (iii) should be read as a non-trivial *per impossibile* conditional. Thus we may say that the state of affairs of there being abstracta does not *begin to obtain* with the beginning of time.

⁴ If you think causes must be *events*, then we invite you to analyze “substance causation” in terms of “event causation”: for example, ‘the bird caused the nest’ reduces to ‘the bird’s actions caused the construction of the nest.’ Then the bird itself counts as a cause *in virtue of* performing actions that (directly) cause something.

be an external cause of a necessarily obtaining state of affairs, just by definition. Fortunately nothing in the argument turns on such cases. In any case, one may understand such cases in terms of *non-trivially* true counterpossibles: see Brogaard and Salerno 2007.⁵)

Finally, we use the term ‘possible’ (and ‘can’) to express broad logical possibility (metaphysical possibility). We may think of possibility in terms of strict compatibility with the basic necessary laws. (See Chapter 2 for further elaboration on matters of modality.)

4.3 On Behalf of the Premises

We will consider each premise in turn. Recall premise (1): for any positive state of affairs *s* that can *begin to obtain*, it is possible for there to be something external to *s* that causes *s* to obtain. We will refer to this premise as ‘the weak causal principle.’

We would like to first point out that the weak causal principle avoids all three of the weaknesses we attributed to the argument from contingent existence (ACE). Recall the weaknesses: (i) the explanatory principle used in ACE doesn’t permit the possibility of an uncaused contingent thing, (ii) causal loops are ruled out, and (iii) there cannot be a wholly “internal” explanation, where the explanation is included in the explanandum. The weak causal principle avoids all three weaknesses. It does not rule out uncaused contingent things, causal loops, or explanations included in the explanandum. The weak causal principle requires only the *possibility* of an

⁵ Luke van Horn drew our attention to a complication that may arise if Molinism is true. According to Molinism, God knows what people would freely do in various circumstances even prior to their existence. Now suppose God knows that if Scott were to exist in circumstance *C*, then Scott would invent a photon computer that would be used for great good. Suppose further that God decides to create Scott and place him in *C*. Suppose even further that if it hadn’t been true that Scott would invent a photon computer in *C*, then God wouldn’t have created Scott. In this case, our account of “external cause” wrongly implies that Scott isn’t an external cause of a photon computer in *C*, since Scott would fail to exist were he not to invent the computer. We may set this complication aside, however, for at least three reasons. First, nothing in our argument turns on such unusual cases. Second, the intended conclusion of our argument is that there is a necessary being, and the scenario in question is only possible if that conclusion is true (since the Molinist God is supposed to exist in every world in which the antecedent of a contingent counterfactual is true). Finally, if Molinism makes possible cases where someone’s existence counterfactually depends on his choices, that may be an argument against Molinism.

external cause for any given *event* involving the beginning of contingent concrete things. So it seems that MAB enjoys some significant advantages over ACE.

Are there any good reasons to accept the weak causal principle? Of course, there are the reasons we considered in Chapter 3 on behalf of a *stronger* principle of explanation. The reasons, recall, were these: (i) inductive generalization, (ii) a priori intuition, (iii) avoiding chaos, and (iv) avoiding arbitrary breaks in explanation. If any of these succeed in supporting the stronger principle, then they surely also succeed in supporting the weaker causal principle. On the other hand, if the *only* reasons to accept the weak causal principle are reasons to accept a stronger principle, then we might as well work with the stronger principle.

Are there any reasons to accept the weak causal principle that aren't also equally compelling reasons to accept a significantly stronger principle? We suggest three candidate reasons.

Reason one: for any arbitrary beginning, it seems perfectly *conceivable* for there to be an external cause of that beginning, and conceivability provides defeasible evidence of metaphysical possibility. Take, for instance, the state of affairs of there being a particular chunk of cheese on a bathroom floor. One naturally wonders how the cheese got there: what caused it? It is not just the *cheesiness* of the situation that generates curiosity. For any state of affairs that begins to obtain—be it a state of a planet, solar system, or even an entire cosmos—one could be curious as to what might have caused it to begin, assuming it did begin. Even if a beginning of a cosmos happens to have no external cause, we can still *conceive* of there being a cause of its beginning: for example, for any given cosmos, we can imagine a different world in which this cosmos is a mere part and is produced by some materials within a larger universe. There is no apparent incoherence in the idea of a cosmos being caused to begin to exist, no matter what its shape or size. In general, it seems one can perfectly well conceive of arbitrary beginnings having some cause or other. In fact, the *conceptual* possibility of causes for arbitrary events motivates major inquiries and advances in theoretical physics and modern cosmology.

To be clear, we do not say that curiosity *demand*s a causal explanation. One's natural inclination to look for explanations may suggest that an explanation is metaphysically possible even if there happens not to be an

explanation. The intuition concerning the mere *possibility* of a cause may seem more secure than one's intuitions regarding the *necessity* or *actuality* of a cause. We suggest, therefore, that a priori intuition may support the weak causal principle without *thereby* supporting the stronger principle of explanation.

Reason two: inductive generalization is safer with respect to the weak causal principle. Consider, first, that the weak causal principle is restricted to *beginnings*—such as the beginning of the existence of a chunk of cheese. The original explanatory principle, by contrast, applies even to contingent things that may lack a beginning. Someone might host doubts about whether contingent things that have *no beginning* must, or even can, have a cause. After all, we are unable to observe a cause of (say) a particle that *never came into existence*. So, one might find inductive generalization more plausible when the scope is restricted to beginnings.

Moreover, anyone who is worried about the *possibility* of counterexamples to the strong principle of explanation may take comfort in the fact that the weak causal principle allows for possible counterexamples. Consider a parallel case. Suppose you are driving through a neighborhood and every house you happen to see has a blue roof. You might infer that every house in that neighborhood has a blue roof. Or, you might hesitate to make the inference. But now consider the inference that every house in that neighborhood *could* have a blue roof. That surely seems to be a safer inference (whether or not blue roofs also seem possible a priori). Similarly, upon considering many beginnings that have a cause, one might find it safer and more plausible to infer that every (positive) state of affairs that begins to obtain *could* be caused to obtain than that every such state of affairs has actually been caused to obtain. Therefore, one could find the inductive generalization with respect to the weaker causal principle to be more secure.

Reason three: states of affairs that begin to obtain don't differ in ways that seem to be *relevant* to causability. Suppose it is compatible with the Basic Laws of Reality (i.e., the metaphysically necessary truths) that a particular apple tree, say, has a cause. Then would it not also be compatible with the Basic Laws that a particular *orange* tree has a cause? It seems differences between shape, size, and the kind of fruit a tree bears are irrelevant. The thought here generalizes: any difference in mere degree of complexity or spatial organization doesn't seem to make a difference with respect to causability. Similarly, if it is possible for an orange tree

to have a cause, then it is possible for a grove of orange trees to have a cause, and for a grove of *trees* more generally to have a cause. Similarly, if it is possible for a solar system that begins to exist to have a cause, then it is possible for a galaxy that begins to exist to have a cause. The size and shape and generality of the system make no difference, it seems, to the possibility of its having a cause. There is a kind of *modal* continuity here: the *possibility* of a cause is unaffected by the sorts of differences that afflict whatever particulars happen to begin to exist.⁶ The thought here is that compatibility with the Basic Laws is insensitive to differences in complexity or arrangement of contingent contents. We think that the ‘modal continuity’ intuition regarding *possible* causes can be much stronger than one’s intuition that there is continuity with respect to *actual* causes.

We should emphasize that the possibility of a cause doesn’t depend upon what *actual* materials there happen to be. Even if there have never been any existing materials that could have caused a particular system to begin to exist, it may still be *possible* for there to be materials that could cause that system to begin to exist—assuming it is possible for that system to begin to exist in the first place.

We suggest, therefore, that one could have reasons to accept the weaker causal principle that go beyond reasons one might have to accept the stronger explanatory principle.

Let us consider now premise (2): it is possible for there to be a beginning of the positive state of affairs of its being the case that there exist contingent concrete things. One might think, for instance, that there could be a beginning of contingent things if a version of the Big Bang theory is possibly true.

Here is a list of four candidate reasons in support of (2):

Reason 1: There are theoretical models that are internally consistent, explain a wide range of relevant data, and imply that the universe has a beginning.⁷ These models might not describe our universe, but they may at least seem possible.

⁶ For an articulation and defense of a principle of modal continuity as a guide to metaphysical possibility, see Rasmussen (2014a).

⁷ See Fleisher (2006).

Reason 2: There are (controversial) philosophical arguments against the possibility of an actual infinity of past events.⁸

Reason 3: It may seem *conceivable* that contingent things have not existed forever; and conceivability is plausibly taken as evidence of metaphysical possibility.

Reason 4: It may seem *unlikely* that a state of contingent things would (and *must*) last for an infinite amount of time.

We will say more about Reason 4—if only because its basis is less known. To begin, let *c* be the class of all contingent concrete things. Each member of *c* is possibly absent from reality. Suppose Tibbles, the cat, is a member of *c*. One may wonder what maintains Tibbles' existence from moment to moment. We see four options. Option 1: Tibbles' existence is maintained by one or more other contingent concrete things, each of which is also maintained by other contingent concrete things, ad infinitum. Option 2: Tibbles' existence is maintained by one or more contingent concrete things that somehow maintain their own existence (by existential inertia perhaps). Option 3: Tibbles' existence is ultimately maintained by foundational members of *c* that aren't maintained by anything. Option 4: Tibbles' existence is maintained by one or more necessary concrete things. We may put this last option aside, since it immediately implies the conclusion of MAB. We will argue that the best of the first three options implies that there probably was or could be an ultimate beginning of contingent concrete things.

The first option is that Tibbles' existence is maintained by one or more other contingent concrete things, each of which is also maintained by other contingent concrete things. It is doubtful, however, that each and every contingent concrete thing is maintained by other contingent concrete things. For if that were so, then there would be an infinite chain of presently existing causes lurking behind every persisting object. That's too many causes. Moreover, even if every contingent concrete thing *were* maintained by another, we may still ask of the entire causal chain, 'What maintains its existence?' Why is there this entire infinite stack? (Or if you

⁸ There is, for example, the argument against actual infinities (Craig and Sinclair 2009, pp. 106–16), the argument against traversing an infinite sequence (pp. 117–25), and arguments against an infinity of contingently ordered things (Moreland 2004). For critical discussions, see, for example, Morrision (2003) and Oppy (2006). See also Grim Reaper and other arguments against infinite causal histories (e.g., Koons 2014).

don't think there is any such *thing* as a causal chain, we may ask what maintains these many causally related things.⁹) Clearly, no contingent concrete thing(s) can be responsible for maintaining the existence of *all* contingent concrete things—*unless* some contingent thing maintains its own existence, which is option 2.

So consider next option 2: Tibbles' existence is maintained by something that somehow maintains its own existence. Call this self-maintaining thing 'Jack.' Now either Jack necessarily maintains its own existence, or Jack can fail to maintain its own existence. Suppose, first, that Jack can fail to maintain its existence. Then we are back where we started: we may now ask, 'What *maintains* the maintaining of Jack's existence?' We could appeal to Jack or some other member of *c*. But in any case, we only push back the mystery. Even if we push the regress back infinitely far, the mystery doesn't go away: it is still puzzling why the infinite chain of causes continues to obtain.

Let us consider, then, the alternative that Jack maintains its own existence *of necessity*. How does Jack do that? Presumably, Jack doesn't *produce* its own existence: for it seems that nothing can produce existence without already having existence. It seems to us that by far the most plausible account of how a thing can maintain its own existence of necessity is that it does so by having a nature that cannot fail to be exemplified. In other words, a thing maintains its existence by having a necessarily exemplified nature. If that is so, then a self-maintaining concrete thing is a necessarily *existing* concrete thing. And we have arrived at the conclusion of MAB.

Here is an alternative: Jack maintains its existence by *existential inertia*, which is the feature of *being such that it continues to exist if it exists at all*. (Alternatively: *being such that it continues to exist unless something stops it*. But then, why doesn't anything ever stop it?) This option is ad hoc. One still wonders: *why* does Jack continue to exist if he exists at all? And: why *must* there be things that enjoy existential inertia? There is a simple explanation. Jack enjoys existential inertia because Jack's non-existence is impossible. But suppose there are no necessary beings. Then it is mysterious why every populated world would happen to be populated with contingent things that cannot cease to exist. One might reply that perhaps it is simply a necessary metaphysical law that the most fundamental bits

⁹ We deal with objections to explaining pluralities in Chapter 3, Section 3.3.

of reality enjoy existential inertia. But why would there be this law? It seems better to have an explanation if one is available, and there is a simple explanation of existential inertia readily available: fundamental bits of reality necessarily *persist* because they necessarily *exist*. In short, necessary existence explains necessary persistence. The considerations here are by no means decisive, but they do suggest why someone might favor an explanation in terms of necessary existence.

Turn, finally, to option 3: Tibbles' existence is ultimately maintained by foundational members of *c* (such as 'lawmaker' entities that ground conservation laws), which aren't maintained by anything. According to this option, the foundational elements have no explanation for their continued existence. Their continued existence is not explained in terms of an impossibility of sudden annihilation, the necessity of "existential inertia," or any other principle. Thus, at each moment, nothing explains why they, and everything they maintain, don't suddenly pop out of existence: contingent reality might vanish like vapor at 7:05 this evening. But then it is extraordinary that things continue to exist. Given some stretch of time—a millennium, say—there will be a non-zero probability that the foundational elements of *c* in fact cease to exist during that time. Probabilities add up over eons. So, if contingent concrete reality has existed for *infinitely* many eons (without a necessary foundation), then in all probability, all of concrete reality would have evaporated by now. But it is unlikely that this happened, since concrete things would have been unlikely to come back into existence from nothing. So, we have a reason to think that contingent reality has not existed for infinitely many eons (assuming no necessary foundation). There was likely a beginning of contingent reality.

More modestly: it is likely that it is metaphysically *possible* that there is a beginning of contingent reality. Recall that the premise in question is only that a beginning of contingent reality is *possible*. This premise is all the more plausible if, per option 3, there is no explanation at all for why foundational contingent things persist for as long as they do. The time span of contingent reality could be ten minutes, say, without any explanation.

Let us continue to premise (3): if (1) and (2) are true, then it is possible that there is a necessary concrete thing. Here is the reasoning behind this premise. According to (2), it is possible for there to be a beginning of the obtaining of the positive state of affairs of there being contingent concrete

things. Notice that such a beginning marks a beginning not only of *particular* contingent concrete things but also of the obtaining of the state of affairs of *there being any contingent concrete things at all*. Now, premise (1) says that every positive state of affairs *s* that can begin to obtain can have an external cause. So, we may infer from (1) that it is possible that *there being contingent concrete things* has an external cause, if such a state is positive and can indeed begin to obtain. Let us state this result in terms of our definition of “external”: it is possible that there is an entity *E*, such that (i) *E* causes *there being contingent concrete things* to obtain, and (ii) it is not the case that if *there being contingent concrete things* were to fail to obtain, then *E* would fail to exist (i.e., it is the case that *E* might exist even if there were no contingent concrete beings). From condition (ii), it follows that *E* is not contingent, since no *contingent* thing would exist if there were no contingent things. And from (i), it follows that *E* is *concrete*, since no non-concrete thing causes anything (according to our use of the term “concrete”). So, *E* would be a necessary concrete thing. Therefore, if (1) and (2) are true, then it is possible that there is a necessary concrete thing.

The final step in the argument is the famous S5-based inference from the metaphysical possibility of a necessary being to its actuality. We argued for this inference in Chapter 2 (see especially Section 2.4). We won’t replay those arguments here. It is worth emphasizing that the inference follows from widely accepted principles of modality, which we may treat as implicit in the definitions of the meanings of “possible” and “necessary.”¹⁰

The conclusion follows: there is a necessary concrete thing.

4.4 Objections

Let us turn to objections.

4.4.1 Objection 1

The weak causal premise is actually not so weak if Kripke’s doctrine of origin essentialism is true. Origin essentialism is the thesis that causes are

¹⁰ Our ‘necessary being’ survey reveals that almost everyone reported an answer that entails the requisite modal principles. We don’t have exact numbers because we didn’t record data per question, but we do know that most participants endorsed the premises of at least one argument that includes the modal principles in play.

essential to their effects. Suppose that's right. Then whatever has *no* causal origin essentially has no cause. By contraposition, whatever *possibly* has a cause *actually* has a cause. It follows that if the weak causal principle is true, then so is a stronger traditional causal principle. The worry here is that once one sees this inference, the dialectical advantage of the weak causal principle is lost.

Reply: We see four ways one might reply. First, someone might deny origin essentialism. It is plausible to many philosophers that the existence of an object is compatible with *some* differences in the causal history. But then a chain of possible worlds with small differences in causal history (cf. Chisholm 1967 and Salmon 1984) shows that the existence of an object is compatible with major difference in causal history.

Second, consider that some of the reasons to accept the weak causal principle are importantly different from the usual reasons for the stronger principle (as we argued). We suggest, therefore, that someone could, in principle, be persuaded to accept the weak causal principle without first being persuaded to accept the stronger principle. Such a person might *then* come to see that the weak causal principle together with Kripke's origin essentialism yields a reason to accept the stronger causal principle. The result is a step forward. One may build new beliefs rather than fall back into unbelief. We suggest, therefore, that one's reasons to accept the weak causal principle together with one's reasons to accept origin essentialism can constitute a *new reason* to accept the stronger causal principle that every beginning has a cause.

On the other hand, it could also happen that someone is convinced that the strong principle is too strong for various reasons. Perhaps they think that quantum mechanics reveals a world in which some beginnings occur without any kind of causal conditions (not even ones that *indeterministically* cause their effects). Or they think that free actions are instances of uncaused beginnings. Then their reasons to accept the weak causal principle may be offset by competing reasons to doubt the strong principle, once they realize that the weak principle implies the strong one. So, the connection between the weak and strong principles could still cause concern for some philosophers.

Consider a third response. Suppose you accept origin essentialism and are thereby hesitant to accept the weak causal principle. In that case, we suggest replacing the weak causal principle with the following weaker premise:

- (16) For any state of affairs s that can begin to obtain, it is metaphysically possible that something external to s causes s or a *duplicate* of s to obtain.

Premise (16) expands the scope to duplicates of s . A duplicate is a qualitative twin: more precisely, s_1 is a duplicate of s_2 if and only if s_1 and s_2 are exactly similar with respect to their intrinsic, non-haecceitistic properties. For example, this term 'cat' is (nearly) a duplicate of *this* 'cat'. We say, then, that a state of affairs s_1 is a duplicate of a state of affairs s_2 if and only if they only differ at most in terms of *haecceitistic* features of their contents. So, for example, *the collapsing of the Eiffel tower* is a duplicate of *the collapsing of a duplicate of the Eiffel tower*.

Premise (16) has an important advantage over (1). The advantage concerns conceivability: for any conceivable event E , it seems we can conceive of something *just like* E having a cause. Take a particular volcanic eruption, for instance. When I try to conceive of a cause of the eruption, I bring to mind certain properties of the eruption. In so doing, I am able to at least conceive of a cause of the same *type* of eruption. Maybe a particular eruption could lack a cause, and so by Kripke's origin thesis, be uncausable. Even still, it may seem perfectly possible for there to be a cause of some *other* eruption of the same type. So, (16) could be plausible even to those who may doubt premise (1).

The rest of the argument is nearly the same. We must add only that a necessary thing is the only thing that could externally cause a duplicate of the state of affairs of *there being contingent things*. This premise is no less plausible than premise (3): for if there can't be a contingent thing that is causally external to *there being contingent things* (premise (3)), then there surely can't be a contingent thing that is causally external to any duplicate of *there being contingent things*. After all, no contingent thing can exist *prior to* (without) there being any contingent things at all. Moreover, it is dubious that there even could be a non-identical *duplicate* of the general state of affairs of *there being contingent things* (even if there can be duplicate 'realizers' of it). We suggest, then, that there is a pathway around the 'origin essentialism' objection.

Someone might reply to (16) that for all we know, *kind* essentialism is true. The idea here is that there might be certain kinds of events, such that if any instance of that kind has no cause, then no instance of that kind possibly has a cause. If that is so, then even (16) is false, unless every instance of every kind of event actually has a cause.

But even if we grant kind essentialism, we can avoid the result we have shown with a slightly weaker version of the causal principle. Consider that some terms, say, “water” and “an elephant,” are twin-earthable (non-invariant), in that they can be used by our intrinsic duplicates with different content, say denoting XYZ instead of H_2O or something that’s just like an elephant but has a different evolutionary history. Other terms, such as ‘is necessary’ or ‘a number,’ are not twin-earthable. Let us say that two states of affairs are weak duplicates provided that they intrinsically differ at most with respect to haecceitistic properties or properties expressible by twin-earthable terms. We now weaken (16) further to say that any state of affairs that possibly has a beginning possibly has a weak duplicate that has a cause. But because the terms which join together to express the state of affairs of *there being something contingent* are neither haecceitistic nor twin-earthable (‘contingent’ is not twin-earthable), our argument can be generalized to work in this case.

Fourth, even if it is not *possible* for something to have a different causal history from the one it in fact has, it is *conceivable* that it has such a different causal history, in the technical sense of conceivability involved in two-dimensional semantics. Just as we discussed in Section 2.4.2 of Chapter 2 in the case of the standard Plantinga-style ontological argument, so too, here our argument could be reformulated in terms of conceivability instead of possibility.

4.4.2 *Objection 2*

Although it may well be true that beginnings are normally causable, an ultimate beginning of the existence of contingent things is by no means a normal beginning. In fact, it is clear that *that* beginning—‘a Beginning of Contingency,’ let’s call it—*can’t* be externally caused by any contingent thing. So, unless one *already* allows for the metaphysical possibility of necessary beings, one has reason to doubt or be unsure about whether there could be a cause of a Beginning of Contingency. To draw out the point, suppose one comes to the argument as someone who doesn’t already accept that there is a necessary being. In that case, one is in no position to accept even that there *could be* a necessary being, assuming one recognizes that if there could be a necessary being, then there is one. Furthermore, one won’t accept the premise that there could be a necessary being that causes a Beginning of Contingency—for, again, one is in no position to think that there could be a necessary being. So, suppose one is

persuaded that a Beginning of Contingency can't be caused by anything *but* a necessary being. Then one will find oneself in no position to think that a Beginning of Contingency could be caused; after all, nothing in one's ontology could serve as a cause. One has a reason, then, to think that a Beginning of Contingency is a special kind of beginning: so *even if* every other kind of beginning can have a cause, one may be in no position to accept that a beginning of this grand kind could have a cause. Anyone who insists otherwise begs the question at issue.

Reply: The 'question-begging' objection is reasonable and to be expected. We'd like to offer a gentle reply that consists of three connected points. Point one: it is at least possible *in principle* for someone to expand their ontology on the basis of a general, defeasible principle. Consider the following scenario. It is 1917, one year before Ernest Rutherford conducted experiments testing whether atoms have a positively charged nucleus. Suppose we live in the pre-Rutherford days and have yet to be convinced that atoms have a positively charged nucleus. We are nuclei skeptics. Then Rutherford performs his experiments—shooting alpha particles into nitrogen gas, etc. He discovers that under certain conditions, a certain event occurs that is best accounted for by positively charged mass at the atom's center. We may now reason as follows: (i) it is unlikely that events displayed in Rutherford's experiments would be caused by anything but atomic nuclei, (ii) it is unlikely (un-normal) for events to have no cause, (iii) therefore, events displayed in Rutherford's theory are likely caused by atomic nuclei. This reasoning may now justify a revision to our ontology: we may now exchange our nuclei skepticism for nuclei optimism. This kind of doxastic progress is surely possible. In the same way, if one sees that a Beginning of Contingency could be caused only by a necessary thing, and if it is indeed unlikely (un-normal) for events to have no cause (let alone no *possible* cause), then one may have a reason to think that a Beginning of Contingency can be caused by a necessary thing.

Now we could imagine approaching Rutherford's experiments with a 'question-begging' worry similar to our objection to the possibility of there being a cause of a Beginning of Contingency. To draw this out, suppose one comes to Rutherford's argument as a skeptic of atomic nuclei. One is certainly intrigued by Rutherford's experiments, for they bring to focus certain events—events of kind *K*—that seemingly could not be caused by anything but atomic nuclei (or something like them). Yet, one hesitates to infer that those events were in fact caused by atomic nuclei

(or anything like them). As one reflects upon the situation, one realizes that there is another option: events of kind *K* are uncaused. Moreover, one realizes that the only way one can account for a cause of these events (events of kind *K*) is if one already assumes there are atomic nuclei (or something like them). So, to avoid begging the question, one maintains that these events might well be uncaused, thereby maintaining a healthy skepticism of atomic nuclei despite Rutherford's experiments.

It should be clear that the *repeatability* of Rutherford's experiments is beside the point. No matter how many times the experiment is repeated, the argument for atomic nuclei still presupposes that events of a certain kind (under which the repeated events fall) have—or probably have—a cause. Plus, since no two experiments are *exactly* alike (since they occur at different times and places), a skeptic can always maintain that such difference could, for all anyone knows, be relevant to causation. The repetition of the experiments does nothing at all to address these deeper philosophical considerations. So, a skeptic of atomic nuclei could remain skeptical.

On the other hand, one has no *independent* reason for thinking that events of kind *K* are unlike other events that evidently do have a cause. So, why should one be skeptical that events of kind *K* have a cause? One could instead reason in an opposite direction: (i) events normally have a cause; therefore, (ii) probably events of kind *K* have a cause; therefore, (iii) probably, there are atomic nuclei (since atomic nuclei are the best candidate causes of events of kind *K*). One's initial lack of belief in atomic nuclei may, therefore, be overturned. Even if one thinks there may be exceptions to causal regularity, it appears that one is in a position to infer causation in this case, unless one has an *independent* reason to think that the case in question is exceptional. It may be question-begging *not* to infer that there is a cause.

Parallel reasoning applies to the case of the Beginning of Contingency. There is no obvious conceptual problem with the hypothesis that such a beginning, like any other type of beginning, *possibly* has a cause. It is far from clear, then, why anyone who comes to the argument as a skeptic of necessary concreta must be constrained from *inferring* that probably, such a beginning, like others, possibly has a cause. True, someone may have independent, forceful objections to the existence of anything that could possibly cause a Beginning of Contingency. And those objections may block them from making the inference that a cause of a Beginning of

Contingency is possible. But our point here is only that in the absence of independent objections, the modal argument may provide new, positive evidence in support of a new belief. Just as lack of belief in atomic nuclei could be overturned by Rutherford's experiments, so too, lack of belief in a necessary being could, at least in principle, be overturned by data in support of an argument, such as MAB.

Consider, second, that a Beginning of Contingency is like other beginnings in the following respect: its occurrence inspires curiosity as to why it occurred. Suppose you suddenly, *right now*, witness a shiny purple bubble appearing before your eyes. I suspect you would wonder how the bubble got there. (At least you *could* wonder about that with sincerity.) It seems such curiosity wouldn't depend upon the size or shape of the bubble; any bubble will do. More generally, if the type, *being a bubble before my eyes*, begins to be exemplified, you may legitimately wonder why that type suddenly *began* to be exemplified. One's wonder is evidently not diminished if the type in question has more instances. Take the following examples: *being a bubble*, *being a constellation of bubbles*, *being a constellation of contingent foam*, *being a constellation of contingent concreta*, *being something*. A *beginning* of each property's exemplification is like the other with respect to the 'why' question: if any of these properties suddenly begins to be exemplified, one may wonder why such a property became exemplified. Of course, the last property on the list *cannot* have an external cause of its exemplification, for nothing can be external to all things. That's consistent with our point: any instance of *beginnings*, just by virtue of being a beginning, calls out for an explanation. If no explanation is possible, then perhaps the beginning in question is impossible. But if a beginning is instead genuinely possible, then it stands to reason that such a beginning is possible to cause—by virtue of its being a beginning.

Observe, too, how our ontology has shifted with the progress of science, and how we are now not only finding causes that are very different from anything our ancestors several hundred years ago thought about, but we are also searching for causes for events very different from those our ancestors thought about. Consider, for instance, astrophysicists looking for a cause of the speed of the expansion of the very fabric of our universe. Yet the plausibility that there is—and a fortiori could be—a cause has remained despite the very significant shift in the kind of event whose cause we are looking for.

We have a third point to offer in response to the ‘question-begging’ objection. Someone may rightly resist the given considerations if she has a good independent reason to think that a Beginning of Contingency is different from other types of beginnings in some respect *relevant to causability*. Are there relevant properties unique to a Beginning of Contingency such that they might disqualify a Beginning of Contingency from possibly having a causal explanation? The question is worth considering. Suppose one has a reason to think that there is no necessary concrete thing. One might then think the following property is relevant to causability: *being something that could be caused only by a necessary thing if it could be caused*. A Beginning of Contingency would have that property, of course. Therefore, one might think that a Beginning of Contingency is uncausable on the grounds that it would only be causable by a necessary being. This option merits attention, especially for those who are already convinced that there cannot be necessary concreta.

On the other hand, we take it that the weak causal principle shifts the burden of proof upon the skeptic of necessary concreta. The skeptic now faces the question of why a Beginning of Contingency is unlike other beginnings in a way that is relevant to causability.¹¹ If the reason is that no candidate cause could exist, then one now faces the question of why one should think that no candidate cause could exist. (We will consider this question more closely in Chapter 9 when we examine objections to the existence of necessary concreta.) Anyone who comes to MAB *without* antecedent reasons to doubt that there are necessary concreta is like one who encounters the results of Rutherford’s experiments and has no reason to deny that *K* events would be caused. That person is in a fortunate position to relinquish skepticism. She is free to learn something new—about atoms in the case of Rutherford’s experiments, and about the foundations of existence, in the case of MAB.

4.4.3 *Objection 3*

When we witness things begin to exist, the new things we see are formed out of previously existing materials. We lack evidence that the fundamental materials out of which all things are formed can themselves begin to exist. Therefore, we lack evidence that there can be an ultimate

¹¹ Maybe you think that a relevant difference could come into play when the beginning is a beginning of the most *basic* contingent materials. We consider that objection next.

beginning of there being fundamental things, whether or not those things are contingent. Hence, we have no good reason to accept premise (2)—that a Beginning of Contingency is possible.

Reply: We note, first, that one could have reasons to think that elementary contingent things can begin to exist. For instance, one might think that a beginning of the existence of fundamental objects is perfectly conceivable, and that conceivability constitutes evidence of possibility. Or, one might be impressed by the likelihood argument we gave for a cosmic beginning. That argument applies to contingent simples, if the best explanation of why a thing continues to exist forever is that it must exist. Or one might think that part of the best, or at least metaphysically possible, explanation of various features of our universe (such as its expansion, background radiation, etc.) is that the basic contingent materials had their beginning in an initial 'Big Bang' event. Notice that none of these reasons requires that one discriminate between fundamental and non-fundamental contingent things.

Second, and perhaps more importantly, the hypothesis that fundamental things cannot begin to exist is itself compatible with premise (2). What is needed to get the objection to stick is the additional hypothesis that necessarily, fundamental things are contingent. But our arguments for (2) could give one who is committed to the no-beginnings-of-the-existence-of-elementary-things hypothesis a reason to *infer* that fundamental things can be necessary beings.

4.4.4 *Objection 4*

Suppose it is possible for a Beginning of Contingency to have a cause. Then, according to premise (3), it is thereby possible that there is a necessary concrete thing. But the inference rests upon a mistake. To see this, suppose *B* marks an ultimate beginning of contingent things that exist in our world. Then *B* is a Beginning of Contingency. But *B* is not *essentially* a Beginning of Contingency: *B* could exist in another world in which there are additional contingent things. Hence, *B* could be *caused* by additional contingent concrete things. So, it is possible for a Beginning of Contingency, such as *B*, to have a contingent cause. No necessary concrete thing is required.

Reply: We begin our reply by making a clarification. When we talk about a Beginning of Contingency, we have in mind an event in which a *general* state of affairs of the form *there being Fs* begins to obtain. We take

it that such a general state of affairs is the same in every world in which there are instances of *F*. To illustrate the assumption, consider rabbits. We take it that the state of affairs of *there being rabbits* is the same state of affairs in every world in which it exists. It is like a property that can have many instances: the property is distinct from each of its instances. Similarly, we take it that the state of affairs of *there being rabbits* is distinct from token states of affairs involving particular token rabbits. So, we take it that although token states vary from world to world, the *general* state of affairs of there being some rabbits or other does not. Similarly, the general state of affairs of there being some contingent concrete things or other is the same in every world in which it exists. And *it* can't be caused to obtain by a contingent concrete thing (while perhaps its obtaining could be *grounded* in particular contingent concrete things).

Besides, we may express MAB without even assuming the identity condition described. We may instead express the argument in terms of tensed propositions expressible in our world. The relevant part of the argument we have in mind is this:

(17) For any (positive) proposition *p* that can begin to be true, it is possible that something externally, causally explains why *p* is true.

(18) It is possible for the (positive) proposition that there are some contingent concrete things (as opposed to none) to begin to be true.

(19) Therefore, it is possible that something externally, causally explains why it is true that there are some contingent concrete things.

(20) If it is possible that something externally, causally explains why it is true that there are some contingent concrete things, then it is possible that there is a necessary concrete thing.

(21) Therefore, it is possible that there is a necessary concrete thing.

To illustrate (20), which is the analog of (3), let '*R*' be the proposition that there are some rabbits. Suppose that *R* can begin to be true: there can be a beginning of the existence of rabbits. Then it seems possible for there to be some causal conditions that give rise to the existence of rabbits. Such causal conditions would thereby explain why it is true that there are some rabbits (as opposed to none).¹²

¹² Alternatively, we may run the argument in terms of the obtaining of facts.

Now surely no rabbits could externally, causally explain why there are rabbits *in the first place*. An *external* explanation must make reference to a non-rabbit, it seems. More generally, no *F* things could externally, causally explain why there are *F* things in the first place.¹³ Therefore, no contingent things could externally, causally explain why there are contingent things in the first place. Therefore, (20) is true.

4.4.5 Objection 5

The modal argument from contingency faces the same ‘reversal’ problem that undermines the modal ontological argument. Here again is the Basic Ontological Argument (given in Chapter 2, Section 2.4):

- (22) Possibly, there is a necessary being.
- (23) If possibly, there is a necessary being, then there is a necessary being (by S5).
- (24) Therefore, there is a necessary being.

This argument is dialectically ineffective, one might think, because there is an equally plausible parody argument for the opposite conclusion. The parody makes use of the following ‘reverse’ premise: possibly, there is no necessary being. This premise undermines the Basic Ontological Argument because it implies that the argument’s conclusion is false. So, why accept (22) rather than the corresponding ‘reverse’ premise? It seems the only way to decide is to have an *independent reason* to accept or to reject that there is, or can be, a necessary being. Hence, the epistemic force of the modal ontological argument seems to be canceled by an equally forceful ‘reverse’ argument. This is the reversal problem.

MAB faces the same problem. Suppose it is plausible that possibly, a Beginning of Contingency has a cause. Then it should be equally plausible that possibly, a Beginning of Contingency has no cause and is instead preceded by nothing at all. And if that’s possible, then it is possible that there is no necessary being. This result is incompatible with the conclusion of MAB, since if it is possible that there is no necessary being, it then follows that there is no necessary being (by S5). So, the epistemic force of MAB seems to be canceled by an equally forceful ‘reverse’ argument.

¹³ That isn’t to say there couldn’t be a *non-causal* explanation of *F* things in terms of *G* things, where the *F*s are also *G*s. See Maitzen (2013, p. 264).

Reply: Consider, first, that the conclusion of MAB is actually compatible with this parody principle: possibly, a Beginning of Contingency has no cause. After all, there is no requirement that necessary concreta *must* cause contingent things. It may be that there are necessary concreta in worlds in which the first contingent things begin to exist without being caused by anything. One of the advantages of MAB is that it *allows* for this very possibility.

In order to defeat MAB, then, one needs a stronger parody premise, such as this one: possibly, there is no necessary being. The objection now is that there is no better reason to accept the premise that possibly, a Beginning of Contingency has a cause than there is to accept the parody premise that possibly, there is no necessary being. Why accept the one over the other?

We have a few points to make in reply. First, consider a situation in which someone demonstrates that a certain controversial metaphysical theory *T* is incompatible with what are taken to be independently plausible principles of mereology. In such a situation, the plausible principles of mereology may be taken as evidence against theory *T*. But now suppose a skeptic of *T* objects that since *T* is unknown, and since we now know that the mereological principles in question entail *T*, we *now* have reason to withhold judgment about the truth of the mereological principles themselves. It seems the skeptic is being unduly skeptical in this case. The *more evident* shines upon the *less evident*. In this case, the more evident mereological principles supply a reason to doubt *T* and to accept $\sim T$. Similarly, one could find it more evident that possibly, a Beginning of Contingency has a cause than that possibly, there is no necessary being—especially if one lacks independent reasons to doubt the existence of a necessary being.

Second, we should emphasize that MAB doesn't contain as an unsupported *premise* the proposition that possibly, a beginning of contingency has a cause. Rather, MAB includes an argument for that proposition on the basis of other, independently supported premises. Someone could find those premises independently plausible. In particular, one could find plausible the weak causal premise. Upon considering the motivations we gave on behalf of that premise, one could find the weak causal premise at least *prima facie* plausible. Similarly, one could also find plausible the premise that a beginning of contingent things (in a Big Bang event, say) is metaphysically possible. Now suppose one readily sees that *if* the weak

causal principle is true, and *if* it is genuinely possible for there to be a beginning to the existence of contingent things, *then* possibly there is a necessary concrete thing. And suppose one is skeptical of the consequent. Must one *thereby* be skeptical of the antecedents? Surely not. One could, in principle, find both antecedents independently plausible and thereby come to find the consequent *more plausible* than one had initially. One's initial skepticism about a consequent need not diminish the plausibility of its antecedent. Things could go the other way: the plausibility of the antecedent could increase the plausibility of the consequent.

Of course, this point won't apply to those who have independent reasons to think that necessary concreta are impossible. In Chapter 9, we will discuss such reasons. We note here just that any "raw intuition" that possibly there are no necessary concreta would seem to be epistemically *canceled* by an equally raw intuition that possibly, there is a necessary concrete thing. So, if one is to favor one possibility over the other, one should have some independent reason to do so. We take it that MAB provides an independent reason to favor the second possibility—the possibility of necessary concreta.

Third, epistemic gains, and true beliefs, are often built by an accumulation of modest epistemic gains. Sure, we want to be careful not to extend our understanding of the causal order beyond what is warranted. We want to avoid error. But we also want to be careful not to be so cautious that we miss opportunities to gain new insights afforded by a working hypothesis. One could suppose, as a working hypothesis, that (i) a Beginning of Contingency, like beginnings we are familiar with in experience, can have an external cause, and that (ii) the state of contingency (of there being some contingent concrete things or other), like other types of contingent states, can have a beginning. These premises are perfectly compatible with their respective 'reversals'—that (i) a Beginning of Contingency can fail to have a cause, and that (ii) the state of contingency can fail to have a beginning. So, the reversal problem doesn't undermine their initial plausibility. In fact, our "necessarybeing.com" survey supplied us with empirical evidence that many people who come to the table as skeptics of a necessary being find variants of the premises of MAB independently plausible. And among skeptics of a necessary being who were disinclined to accept premises in more traditional cosmological arguments, more than a third accepted variants of MAB's premises, even without the supporting arguments we have presented here. It seems to us, therefore, that MAB

can give people a reason that tips the scales in favor of accepting—as a working hypothesis, at least—that there is a necessary concrete reality.

4.5 Concluding Assessment

The argument we have just presented (MAB) has certain important advantages over previous cosmological arguments for a necessary being. Here are five. First, MAB, unlike traditional cosmological arguments, allows for the metaphysical possibility of uncaused contingent beginnings. So, the Humean objection that uncaused events are conceivable and thus possible doesn't even apply. Second, MAB allows for a very minimal notion of "causation" according to which *circular* causal chains are metaphysically possible. Third, MAB, unlike the Argument from Contingency, allows for the metaphysical possibility that some contingent facts enjoy completely "internal" explanations. Fourth, unlike the Argument from Contingency, MAB allows for the metaphysical possibility of ungrounded, infinite causal regresses. Fifth, MAB makes use of premises that many skeptics of traditional cosmological arguments find plausible (according to the results of our 'necessary being' survey).

Is MAB sound? In our estimation, the weakest link in the argument is its causal principle. The principle quantifies over every possible beginning, and one might hesitate to think that our experience with actual beginnings warrants a causal principle concerning *every* possible beginning. Although we do think skepticism here can be undue, as we explained, we don't say skepticism *must* be undue. One may prefer a surer path with surer links. Fortunately, there are more arguments to come.

5

From Possible Causes II

5.1 Introduction

Some causal principles are more extensive than others: they quantify over more things. The most extensive principle quantifies over *everything*—everything has a cause. Extensive principles typically enjoy the virtue of simplicity. Yet because they are so extensive, there are many opportunities for a counterexample. By contrast, a restricted causal principle is safer—less prone to counterexamples. Thus in this chapter we will build an argument using a highly restricted causal principle. Our goal is to find a causal principle that is among the safest causal principles that might be used in a ‘modal’ cosmological argument for a necessary being.

5.2 Restricted Causal Principles

Talk about causes is part of ordinary language. We say such things as ‘the tornado caused these telephone poles to collapse,’ or ‘stress can cause fatigue,’ or ‘The President’s speech caused rejoicing in the streets.’ And so on. It is not hard to imagine that at least some of these things we say are true. Even those who tend to be suspicious of folk ontology may find it plausible that some things are caused by other things, on some sense of the term ‘cause.’

It would be helpful if we could say more about *which* things have a cause. Suppose that for any given type of thing, one has absolutely no idea whether things of that type have a cause. For example, one has absolutely no idea whether there is a cause of the existence of each iPhone, or even whether there is a cause of each iPhone in one’s own house. Then it is difficult to see how one could avoid radical skepticism. For instance, one wouldn’t be sure that one’s iPhone didn’t snap into being uncaused. And

for that matter, one wouldn't be sure that one's own thoughts and beliefs have a rational cause or any cause at all.¹

It seems, then, we should be able to say *something* about which things have a cause. Let us begin by trying out the *least* restricted causal principle:

- (1) For any *xs*, there is a cause of the *xs*.

This principle neatly applies to any and all portions of reality, whether the portion consists of a single entity or a plurality of entities. No principle has a more extensive application. No principle is less ad hoc. For this reason alone, it would be nice if (1) were true.

Unfortunately, (1) suffers from falsehood. The reason is simply that there cannot be a non-circular cause of *all* things. To be clear, we do not say that there cannot be a non-circular cause of *each* thing, such as in an infinite causal regress. The problem with (1), rather, is that there cannot be a cause or causes of *all things* together. That is because any causes of all things would be among the very things to be caused. In other words, the causes would be among their effects, which is circular. (This particular circularity problem doesn't show up in discussions of traditional cosmological arguments, for those arguments are expressed using *singular* quantification, whereas (1) quantifies over pluralities.)

So, we have reason to prefer a restricted causal principle. Which principle? There are many options. One option is to restrict the scope to contingently existing concrete particulars (or to the *facts* that such things exist). We developed that option in Chapter 3. Another option is to restrict the scope to beginnings of a certain kind. We took up that option in Chapter 4. These options have their appeal, as they allow us to account for a wide range of cases of causation. But there is still the threat of unusual or unexpected counterexamples. Although full protection from counterexamples may be impossible, we'd like to look for a restricted principle that could be more appealing than the previous ones.

Consider this principle next:

- (2) Any property that can begin to be exemplified can be caused to be exemplified.

¹ Cf. Koons (1997) for the original use of skeptical considerations in favor of a causal principle, and Koons (2006) for a discussion of restricted principles.

Principle (2) may remind you of the principle we considered in Chapter 4, since both principles imply that beginnings of a certain sort can have a cause. The main difference between the principles is that (2), unlike the previous one, is expressed in terms of properties. We give the principle in terms of properties to prepare the way for a series of restrictions to the scope of properties.

Before turning to restrictions, let us clarify the meaning of (2). The key terms are these: ‘begin to be exemplified,’ ‘caused to be exemplified,’ and ‘can.’ Consider ‘begin to be exemplified’ first. We offer the following definition:

- (3) Begins: A property *P* begins to be exemplified if and only if
 (i) there is a time at which *P* is exemplified, (ii) there is a time or a finite interval of time *U*, such that there is no time prior to *U* at which *P* is exemplified, and (iii) *P* would not be exemplified without time.²

In short, a property begins to be exemplified if and only if its exemplification is restricted to a finite interval of time in the past direction.

Consider next the term ‘caused to be exemplified.’ As we explained in previous chapters, we wish to be as neutral as we can about the nature of causation. We want our argument to be compatible with a variety of frameworks, and we invite readers to interpret our premise in a way that makes sense of their preferred framework. For example, you might think the primary relata of causation are events. In that case, you could interpret ‘*x* causes the exemplification of *P*’ as ‘*x* causes the event of *P*’s being exemplified’. Or you might prefer: ‘*x* causes an event, which *grounds* the exemplification of *P*’. The options are wide open.

That said, there is one requirement we insist on—the ‘no circularity’ requirement. More exactly: if *x* causes a property to be exemplified, then *x* can exist without exemplifying the very property it causes to be exemplified. So, for example, if *x* causes *being an iPhone* to be exemplified, then *x* is not an iPhone—or at least, *x* was not an iPhone just prior

² This definition may remind you of the definition we gave of ‘begins to obtain’ in Chapter 4. Just as before, clause (iii) is added in case there could be things, such as abstract objects, that exist during the earliest moments of time and that would exist even if there were no time. We say that the state of affairs of there being such things wouldn’t *begin to obtain* with the beginning of time.

to the exemplification of *being an iPhone*.³ The basic idea here is that giving a cause of the exemplification of a property explains (at least in part) why that property is exemplified *in the first place*. So if *x* already has the very property whose exemplification is to be explained, then the explanation is circular—which is not an appealing result. We say, then, that a cause of the exemplification of *P* is causally prior to the exemplification of *P*.

Finally, we use the term ‘can’ to express broad logical possibility (metaphysical possibility), just as we have done in previous chapters. (See Chapter 2 for further elaborations.) We trust that the meaning of (2) is now sufficiently clear.

Is (2) true? Recall the principle: any property that can begin to be exemplified can be caused to be exemplified. This principle accounts nicely for many properties that can begin to be exemplified. For example, there can evidently be causes of the exemplifications of these properties: *being an iPhone*, *being a tiger*, *being a rock*, *being a planet*, *being a smile*, *being a car crash*, *being a tornado*, *being a galaxy*, and many others.

However, some properties may inspire doubts. Take, for example, this property: *being an uncaused event*. Suppose one is unsure whether every event in fact has a cause. One’s doubts here may arise from the thought that, for all anyone knows, there might have been a first, uncaused event. In this case, one will be unsure whether *being an uncaused event* has been exemplified. These doubts lead to doubts about (2). For suppose *being an uncaused event* was in fact exemplified some time ago by an initial, uncaused event. Then we have what looks like a counterexample to (2). The reason is that there *couldn’t* be a cause of the exemplification of *being an uncaused event*. We are assuming here that the only way to cause *being an uncaused event* to be exemplified is to cause an event that exemplifies *being an uncaused event*. Clearly, there can’t be a caused event that exemplifies *being an uncaused event*. So one might have reasons to doubt (2).

We may sidestep these concerns by working with a more restricted principle, such as this one:

- (4) For any property *P*, if (i) *P* can begin to be exemplified, and (ii) *P* can have instances that have a cause, then there can be a cause of *P*’s being exemplified.

³ We could perhaps imagine a sophisticated piece of equipment that causes itself to become an iPhone.

The advantage is clear: (4) doesn't apply to *being an uncaused event*. Again, we are assuming that the only way to cause *being an uncaused event* to be exemplified would be to cause an instance of it—i.e. to cause an uncaused event. Without that assumption, the motivation behind the restriction goes away.

Even still, there are ways to become worried about the threat of counterexamples. For instance, one might think there are such properties as *being a member of a causal series that is headed by an uncaused event*. One might think, furthermore, that such a property meets the conditions of (4): that is, (i) *being a member of a causal series that is headed by an uncaused event* can begin to be exemplified because there can be a first, uncaused event, and (ii) *being a member of a causal series that is headed by an uncaused event* can have members that are caused—such as non-first members of a causal series. But then we have a problem because it is impossible for such a property to be caused to be exemplified: any such cause would lack *being a member of a causal series that is headed by an uncaused event* (per our 'no circularity' requirement) and so would fail to be a member of a causal series.⁴

Perhaps we can proceed with greater confidence if we restrict our scope to more natural properties. The property we have looked at seems to be "built" out of lots of other properties in an ad hoc way. To avoid ad hocery, let us say that a property is "basic" iff one can grasp it without thereby grasping other properties or relations. Here are some candidate examples: existence, truth, goodness, and necessity. Now, to be honest, we'll need to expand our scope somewhat for our argument to work. In particular, it would help if we could include *determinates* of basic properties, such as *contingent existence*. Determinates of basic properties are still relatively natural—certainly more so than the causal series property just considered. Moreover, causing a specific determinate is no *harder* than causing its more general determinables (in the cases where the determinate is genuinely possible). So perhaps the following principle is safer:

- (5) For any property *P*, if (i) *P* can begin to be exemplified, (ii) *P* can have instances that have a cause, and (iii) *P* is basic or a determinate of a basic property, then there can be a cause of *P*'s exemplification.

If there are counterexamples, they are not easy to establish.

⁴ This example is inspired by an e-mail correspondence (February 2009) with Graham Oppy.

Still, even without explicit counterexamples, one could worry that some properties are unlike the properties whose causal conditions we are familiar with. So, for example, although we may feel sure that there can be a cause of the first iPhone, we may feel less sure that there can be a cause of a first *particle*.

Perhaps we can gain confidence by restricting the scope to properties that are importantly *like* properties whose causal conditions are clearer. There are many ways to be “like” something. One way is in terms of being a specific version of something. For example, *being an iPhone 5* is a specific version—a determinate—of *being an iPhone*. You might think that differences merely with respect to degree of specificity don’t normally make a difference with respect to the possibility of having a cause. For example, you might think that if *being an iPhone 5* can be caused to be exemplified, then so can more general technological features. The idea here is that determinates and determinables tend to enjoy causal uniformity: if the specific version can be caused, then so can the general version.

A causal principle that records this idea is as follows:

- (6) For any property *P*, if (i) *P* can begin to be exemplified, (ii) *P* can have instances that have a cause, (iii) *P* is basic or a determinate of a basic property, and (iv) there is a determinate of *P* that can be caused to be exemplified, then there can be a cause of *P*’s being exemplified.

This principle is very modest as far as causal principles go. Any further restrictions to the principle may seem causally irrelevant.

But to be even more cautious, we may add the ‘normally’ operator:

- (7) Normally, for any property *P*, if (i) *P* can begin to be exemplified, (ii) *P* can have instances that have a cause, (iii) *P* is basic or a determinate of a basic property, and (iv) there is a determinate of *P* that can be caused to be exemplified, then there can be a cause of *P*’s being exemplified.

It will be convenient to refer to our causal principle by a name. Let us call it ‘the very weak causal principle’, or ‘the W principle’ for short, since it is among the very weakest causal principles we have encountered in the literature on cosmological arguments.

Our goal has been to find a general causal principle that is among the safest. Whether the safest is *safe enough* is open to inquiry, and we leave

it to readers to consider their own judgment of the matter. We believe we have come far enough in our journey to find a principle that is safer than others. We suspect that many philosophers could find the principle plausible, including even some philosophers who may be skeptical of the causal principles featured in previous chapters.

To be clear, we have not found a principle that accounts for all cases of causability. That wasn't our goal. What we've done, rather, is find a principle that accounts for many cases of causability and that avoids certain threats that various stronger principles face.

We'd like to offer one more consideration in support of having a restricted causal principle in hand, whether (7) or something else. Causation is part of ordinary experience (leaving aside debates over the nature and conditions of causation). Yet we saw that the most general principle of causation, the principle that quantifies over all portions of reality, is not true: it isn't true because there is no cause of the entirety of all reality (whether "all reality" denotes a single thing or a plurality of all things). So, some realities have a cause, but not all realities. What accounts for the difference between the realities that have a cause and those that don't? There are two options: either (i) there is an informative answer to the question, one which would account for our causal order, or (ii) there isn't any informative answer. If there isn't an informative answer, then there is no causal order: we might as well expect any arbitrary properties to begin to be exemplified spontaneously at any time without a cause. But we don't expect that. Thus, we should expect that there is, or are, some informative answer, or answers, which can account for the difference between caused and uncaused realities. The best accounts enjoy the virtues of explanatory scope, modesty, immunity to apparent counterexamples, and lack of 'ad-hocery.' The W principle has those virtues. There are other causal principles, of course, but we find none that *exclude* the W principle while also being nearly as virtuous. It seems, then, that without an independent reason to doubt the W principle, it could be reasonable for one to favor—perhaps even outright accept—the principle.

5.3 The Restricted Modal Argument

We will now build a bridge from the W principle to the conclusion that there is a necessary being. Our construction takes the following steps:

- (8) The W Principle: normally, for any property *P*, if (i) *P* can begin to be exemplified, (ii) *P* can have instances that have a cause, (iii) *P* is basic or a determinate of a basic property, and (iv) there is a determinate of *P* that can be caused to be exemplified, then there can be a cause of *P*'s being exemplified.
- (9) There is property *C*, such that *C* = *being contingent*.⁵
- (10) *C* can begin to be exemplified.
- (11) *C* can have instances that have a cause.
- (12) *C* is basic or a determinate of a basic property.
- (13) There is a determinate of *C* that can be caused to be exemplified.
- (14) Therefore, there can be a cause of the exemplification of *C*.
- (15) If there can be a cause of the exemplification of *C*, then there is a necessary concrete thing.
- (16) Therefore, there is a necessary concrete thing.

Call this argument 'The Weak Argument from Beginnings' ('WAB'). We should emphasize that the inference to sub-conclusion (14) is defeasible. That is because the W principle is defeasible, which is to say that one could accept that the principle is true, as a rule of thumb, while having an independent reason to think that *C* is an exception to the principle. In the absence of such a reason, on the other hand, one may infer that (16) is true.

5.4 On Behalf of the Premises

We shall now consider some reasons in support of the premises. Start with the first premise, (8), which is the W principle. In Chapter 4, we considered reasons to believe a stronger principle that entails (8). The reasons were these: (i) conceivability provides evidence of causal possibility, (ii) inductive generalization, and (iii) causal uniformity—i.e. differences between cases aren't different in a way that is relevant to the causal condition. Such reasons could equally be marshaled in support of (8).

⁵ Alternatively, let *C* = *being contingent and concrete*. The argument runs in basically the same way.

Is there any reason to accept (8) that does not also underwrite a stronger principle? We think so. Consider that the W principle applies to certain properties. In particular, (8) applies only to properties that have a determinate that can be caused to be exemplified. We think that the fact that a determinate of *P* can be caused to be exemplified adds *some* credence to the hypothesis that *P*, too, can be caused to be exemplified. After all, one way to cause *P* to be exemplified is to cause one of its determinates to be exemplified. For example, one way to cause *redness* to be exemplified is to cause *scarlet red* to be exemplified. That is not to say that causing a determinate *thereby* causes the determinable, for the determinable might *already* be instantiated by (or “realized in”) a different determinate. But keep in mind that the W principle is restricted to properties that can *begin* to be exemplified. Furthermore, a cause of *any* determinate of *P* at the beginning of *P*’s exemplification would thereby cause *P*’s exemplification. For this reason, if *P* has a determinate that can be caused to be exemplified, that lends significant credence to the hypothesis that *P*, too, can be caused to be exemplified, especially in the case where *P* can begin to be exemplified.

To be clear, we are not suggesting that evidence arising from the determinates of *P* is indefeasible. The W principle is defeasible, and it is logically possible that it suffers from counterexamples. In fact, someone could have reason to think or suspect that *C* is a counterexample. We will return to this option when we discuss objections (in Section 5.5.1). Our suggestion so far is just that there is reason to think that the W principle has an advantage over the causal principle given in Chapter 4.

Another advantage of the W principle is that it is very weak. We explained why someone could have reasons to prefer the weakenings. The weakenings allow us to completely avoid certain objections to an unrestricted modal causal principle. Even if none of those objections are ultimately sound, one may be unsure that they aren’t sound. The weaker principle is, thus, safer.

Let us move on to premise (9): there is a property *C*, such that *C* = *being contingent*. For the sake of neutrality, we will not assume that there actually are properties. Nominalists are welcome to translate property talk into talk of predicates. Thus a nominalist may interpret (9) as follows: “*C*” abbreviates the predicate ‘is contingent.’ Then translate talk of exemplification in terms of predicate satisfaction. Thus, for example, translate

“there can be a cause of the exemplification of *C*” as ‘there can be a cause of the fact that “*C*” is satisfied by something.’⁶ Thus, (9) is merely a definition.

Premise (10) is next: *C* can begin to be exemplified. A beginning of the exemplification of *C* marks a Beginning of Contingency. In Chapter 4, we offered four reasons in support of the premise that a Beginning of Contingency is possible. We will not repeat those arguments here. (For the unconvinced, we will later consider an alternative route that proceeds without (10)—see our reply to Objection 2.)

After (10), the remaining steps are relatively easy. The next step, (11), says that *C* can have instances that have a cause. The authors are an example: each is a contingent thing, and his parents caused him to exist. Next is step (12): *C* is a determinate of the basic property of existence.⁷ Then step (14): there is a determinate of *C* that can be caused to be exemplified. Take, for example, being a contingent human. That property was caused to be exemplified by our ancestors. From all these steps the subconclusion follows: there can be a cause of the exemplification of *C*. Again, the inference is non-deductive. The *W* principle gives us a defeasible reason to think that there can be a cause of the exemplification of *C*, since the antecedent conditions of the principle are met.

The final premise is (15): if there can be a cause of the exemplification of *C*, then there is a necessary concrete thing. We justify this premise as follows. Suppose there is a cause, call it *N*, of the exemplification of *C*. Then by the no circularity condition, *N* can fail to exemplify *C*—since *N* is causally prior to the exemplification of *C*. Therefore, *N* can fail to be a contingent thing. That means that *N* can be either a necessary concrete thing or a necessary non-concrete thing. We may rule out the second option because a concrete thing includes anything that can cause something, and *N* can cause the exemplification of *C* (this argument implicitly uses S5). Therefore, *N* can be a necessary concrete thing. Therefore, if (15) is true, then it is possible that there is a necessary concrete thing. Finally, we move from the possibility of a necessary concrete thing to its actual existence by the arguments we gave in Chapter 2.

⁶ Or: ‘there can be a cause of the fact that there are *C*s.’

⁷ We may treat existence as the property expressed by “being an *x*, such that *x* exists.” We assume that any formula with a single free variable defines a property and therefore that existence counts as a property. But if someone doesn’t think there is any such property as existence, they may treat *contingent existence* as itself basic, since it is then not a conceptual combination of other properties.

5.5 Objections

It is time for some objections.

5.5.1 *Objection 1*

The W principle may be a good rule of thumb, but the property *C*—*being contingent*—is a good candidate for an exception. Suppose I come to the WAB argument for a necessary being as a skeptic of a necessary being. Then once I see that only a necessary being could cause *C* to be exemplified, I have a reason to be skeptical that *C* can be caused to be exemplified. In other words, I have a reason to think that *C* is an exception to the defeasible causal principle. This result is problematic because WAB was supposed to appeal to those who aren't already believers in a necessary being. Skeptics of a necessary being have a reason, then, not to accept that *C* can be caused to be exemplified. They have a reason to remain skeptical.

Reply: We begin with a concession. We agree that someone who is skeptical of the existence of a necessary being *may* have a reason not to be persuaded by our argument. One must weigh many considerations, after all. So, not every skeptic must be moved.

That said, not every skeptic must meet the conditions for *not* being moved. The causal principle in play is an extrapolation from many apparent cases of cause and effect. We readily concede that *C* is not itself among the clear cases: perhaps no one has direct insight into the causability of *C* (where 'is causable' is shorthand for 'can be caused to be exemplified'). Even still, *C* is like other causable properties: (i) it can begin to be exemplified, (ii) it can have caused instances, (iii) it is basic or a determinate of a basic property, and (iv) it has causable determinates. And there are no clear cases of properties meeting those conditions that *fail* to be causable. So, it may be reasonable to infer that *C*, like the others, is causable. Property *C* is like an emerald in an unexplored cave. We have reason to think any emeralds in the cave are green—but not because anyone has directly observed the color of emeralds in that particular cave. Our inference is based upon what we know about the emeralds we have witnessed directly. The inference may be defeated, in principle. But defeating the inference requires some reason to think that the unknown case is different from the known cases in a way that is apparently relevant to causability. Without such a reason, the conditions of defeat have not been met.

Does a skeptic of a necessary being have a reason to think that *C* is uncausable? That depends. If the skeptic has an *independent* reason to think that there is no necessary being (or that one cannot have a reason to think there is a necessary being), then they may have a reason to think that *C* is relevantly different from other properties meeting (i)–(iv). Thus, one may have a good reason to remain skeptical. On the other hand, someone could come to WAB without any idea whether or not there is a necessary being. This person is like someone who has no idea what color emeralds are. After getting evidence that crystals meeting certain conditions are all green, they are in a position to extrapolate that even unobserved crystals meeting those conditions are likely to be green. Similarly, someone could extrapolate from the clear cases of causability: they may thus infer that *C* is probably causable. In this way, one's inductive evidence may increase the credibility, or reduce the incredibility, of the proposition that there is a necessary being. Therefore, some skeptics may be free to be moved by the argument, even if not all skeptics are so liberated.

It is worth adding that someone could have reasons to be skeptical that there is a necessary being and yet *still* be moved by WAB. That would happen in the case where one judges that the evidential support in favor of the causal principle outweighs one's reasons for being skeptical that there is a necessary being.

Finally, it is not clear that there are any powerful reasons to think that there is no necessary being. We will assess what we take to be the most promising arguments against a necessary being in Chapter 9 (based upon conceivability and "subtraction"). Our judgment will be that those arguments are weak at best. Their premises are not nearly as well supported as a general principle of cause and effect from which the existence of a necessary being may be deduced. If there are good reasons to think that *C* is an exception to the principle we proposed, they aren't easy to identify—at least not for us.

In the end, we anticipate that there will be healthy disagreement over the applicability of the W principle. Our contention is that the appropriate line of disagreement should not be drawn between believers and non-believers in a necessary being. Rather, the line should be drawn between those who have a sufficiently strong reason to doubt the causability of *C* and those who lack such a reason. Further lines come later in thought.

5.5.2 *Objection 2*

Maybe there cannot be a Beginning of Contingency. After all, maybe matter, while contingent, cannot be created or destroyed. A Beginning of Contingency would mark the “creation” (coming to be) of matter *ex nihilo*. Therefore, a Beginning of Contingency is impossible.

Reply: We have two replies. First, it seems to us that if something cannot *come to be* or *cease to be*, then the simplest and best explanation of these facts is that it cannot *fail to be*. In other words, anything that exists in time that can fail to be can fail to continue to be. If that is right, and if matter really cannot come into being, then that is because matter is metaphysically necessary. Thus, we have reached the conclusion of WAM—i.e. there is a necessary being. (WAM leaves wide open questions about the *nature* of necessary beings.)

Second, let us suppose that there in fact cannot be a Beginning of Contingency. Then premise (10), which implies that there can be a Beginning of Contingency, is false. Even still, there are other ways forward. To see one path we have in mind, suppose *C* can’t begin to be exemplified—because (10) is false. Then we face a provocative question: *why* can’t *C* begin to be exemplified? The simplest answer, it seems to us, is that there can’t be an ultimate beginning of reality, which in turn is because there are basic, necessarily existing building blocks out of which contingently existing things are constantly constructed. In that case, although (10) would be false, there would be a necessary concrete thing.

Here is a different path. Consider that there is a necessary concrete thing if *C*, though eternally exemplified, can be caused to be exemplified (given the ‘no circularity’ condition). Of course, someone may deny that *C* can be caused to be exemplified. Yet unless one has an independent reason to think there cannot be a necessary concrete thing, it may be reasonable to suppose that *C*, like every other property that entails contingent existence, can be caused to be exemplified. This consideration suggests that we may proceed without (10) if we are willing to take on board the following slightly stronger causal principle:

- (17) Normally, for any property *P*, if (i) *P* can fail to be exemplified, (ii) *P* can have instances that have a cause, (iii) *P* is basic or a determinate of a basic property, and (iv) there is a determinate of *P* that can be caused to be exemplified, then there can be a cause of *P*’s being exemplified.

This principle is more powerful than the W principle because this one replaces the condition that *P* can *begin* to be exemplified with the condition that *P* can *fail* to be exemplified. The replacement is not unreasonable. The new condition may appeal to those who would expect that there there could be a causal explanation of *P*'s exemplification in the cases where *P*'s exemplification is not a *matter of necessity*.

There is a trade-off, however. On the one hand, the more powerful causal principle may seem less safe than the W principle. On the other hand, if we take on board the more powerful principle, then we may proceed without (10). We may instead suppose merely that *C* can fail to be exemplified—i.e. there can be a world empty of contingent things. We invite readers to consider for themselves which path, if any, seems sufficiently safe to step along.

5.5.3 *Objection 3*

All cosmological arguments are unsafe because (i) they rely upon a causal principle that generalizes far beyond ordinary experience, and (ii) they imply an extravagant ontology. WAM may rely on a more modest causal principle than other cosmological arguments, but it is still unsafe for the two reasons just given.

Reply: There is a certain risk in believing a proposition on the basis of any philosophical argument (or on any basis whatsoever, if fallibilists are right). The risk, of course, is having a false belief. But some risks are worth it.

In the case of WAM, the reasons to worry are not that strong. We will critically assess reasons to think the resulting ontology is “extravagant” in Chapter 9. For now, we note that there is a long tradition of arguments for necessarily existing entities (such as numbers, properties, possible worlds, and so on). If any of these arguments are sound, then there is independent reason to at least take on the extravagance of ‘necessary existence.’ Furthermore, if there are necessary things, then it doesn’t seem surprising, *a priori*, that some of them are concrete.

As for causal principles that go beyond “ordinary” experience, consider that what matters for extrapolation is that the “unclear” cases are not apparently *relevantly* different from the “clear” cases. Take, for example, a stack of fifty billion anteaters. Such a stack is certainly not part of ordinary experience. Yet it is far from foolish to suppose that if such a pile were to exist, then there could have been a cause of its existence. That isn’t

foolish to think because a stack of anteaters doesn't appear to be *relevantly* different from other stacks of things that can have a cause. It doesn't seem to matter how many anteaters are in the imagined stack: stacks of any size won't snap into being without a possible cause. Again, what matters is not how ordinary the stack is. What matters is that the stack is not different in a way that appears relevant to causation. Similarly, unless there is some reason to think that *C* is uncausable, it seems we lack a reason to think that *C* is relevantly different from other causable properties. Hence, it is far from foolish to suppose it, like the others, is causable.

5.5.4 *Objection 4*

WAM moves modal pieces around to get the intended conclusion that there is a necessary being. But we could construct an equally persuasive argument against the existence of a necessary being with different pieces. For example, consider this argument:

- (18) Possibly, there is a finite number of concrete things.
- (19) Necessarily, if there is a finite number of concrete things, there could have been fewer.
- (20) Therefore, possibly, there are no concrete things.
- (21) Therefore, possibly, there is no necessary concrete thing.
- (22) Therefore, there is no necessary concrete thing.

This "subtraction" argument is no less plausible than WAB. Thus, the arguments are awash.

Reply: We will discuss "subtraction" arguments in Chapter 9. Our contention will be that subtraction arguments against a necessary being fall prey to a fatal parity problem. We find no parallel problem with WAM.

5.5.5 *Objection 5*

WAB rules out circular causation. But circular causation is not clearly impossible. For example, there are time-travel scenarios that imply circular causation, and those scenarios aren't clearly impossible.

Reply: We did stipulate that the cause of the exemplification of a property would not have the very property it causes to be exemplified. But we need not insist that circular causation is impossible. Our argument

requires just that non-circular causation with respect to any given case is also possible. That is to say, if a property *P* is within the scope of our causal principle, then even if *P*'s exemplification can be causally explained in terms of something that has *P*, our principle implies that it *also* can be causally explained in terms of something that lacks *P*. The evidence for the causal principle remains the same. After all, the mere possibility of circular causation in the relevant cases would not seem to render non-circular causation impossible. Thus, one may support WAB without ruling out circular causation. And the rest of the argument still goes through the same.

5.6 Concluding Assessment

We have developed a highly modest cosmological argument for a necessary being. The modesty of the argument arises from the fact that it employs a causal principle that is highly restricted. The principle is designed to be safe from certain potential counterexamples. We observed that there is one salient potential counterexample that our principle is not immune to—namely the case of a property, *C*, whose causability implies the grand conclusion that there is a necessary being. But as we argued, this case shouldn't seem threatening unless one has an independent reason to think that the potential counterexample is a genuine counterexample. The causal principle has a good track record of success, and that track record provides a defeasible reason for extrapolation.

On the other hand, WAB isn't perfect. We will close by listing three potential drawbacks. First, WAB requires that *C*—*being contingent*—is causable. Someone could question whether that property is causable. Property *C* is like an emerald in an unexplored cave. Imagine that the cave is on a planet where scientists have speculated (for various reasons) that there *might* be blue emeralds. How sure can we be that the emeralds in that cave are green? We argued that the apparent cases of causability add credence to the proposition that *C* is causable. But one may wish to have more than an addition of credence: one may wish to directly *see* that *C* is causable. Without that, one may find it impossible to proceed with high confidence. Second, WAB requires that a Beginning of Contingency

is possible, and someone could have reasons to question that step. (We did consider an alternative route, but that route required a bolder causal principle—so there are trade-offs.) Third, WAB, like any argument from cause and effect, requires that there can be causes and effects. This requirement may not bother many readers, but it is something to consider, especially when the waters are this deep.

6

From Modal Uniformity

6.1 Introduction

Sometimes it is hard to know whether something is metaphysically possible or metaphysically impossible. Is it *possible* for someone to travel back in time? Is it *possible* that a physical duplicate of me lacks consciousness? Is it *possible* for there to be a pair of objects that occupy the exact same space? Is it *possible* for there to be a necessary being? These are difficult questions. The right answers, whatever they are, are difficult to *just see*. Our modal vision is limited.

Yet many philosophical arguments, including ones we have given, rely upon premises about what could or could not have been. For example, Chapters 5 and 6 made use of a premise about the *possibility* of a cause. How can we see into such possibilities?

One strategy is to develop a ‘modal’ test that accounts for many clear cases of possibility. There is, for example, Chalmers’ famous conceivability-based test: if we can conceive of the situation in question, then we have evidence that the situation is metaphysically possible.¹ Chalmers skillfully distinguishes between different types of conceivability and explains how they may help guide our modal vision. The tests make sense of many cases of conceivable situations that seem clearly possible. Example: it is conceivable that some new houses get built, and that’s clearly possible. With a “conceivability” test in hand, we may gain a reason to think that a certain situation is possible, even while lacking *direct* insight into its possibility. (In Chapter 9, we will discuss the application of conceivability-based tests to the proposition that there is no necessary being.)

¹ See Chalmers 2002.

Another strategy is to move from clear cases of possibility to less clear cases via some principle of inference. For example, someone might not see clearly whether the following is possible:

- (1) There is an object that has exactly 12 edges and 8 faces.

Even so, one might find it immediately plausible that any *regular polyhedron* could be a shape of an object. In that case, one will find it plausible that for any regular polyhedron H , it is possible that:

- (2) There is an object with shape H .

Now with a little geometric reasoning, we can demonstrate that any object that has exactly 12 edges and 8 faces is a regular octahedron, which is itself a regular polyhedron. Thus, someone who accepts the possibility of (2) for any regular polyhedron may then *infer* that there could be an object that has exactly 12 edges and 8 faces. In this way, one comes to see that (1) is possible by *first* seeing that (2) is possible for any regular polyhedron.

This example uses a deductive inference from one possibility claim to another. But there are also cases where it may be reasonable to infer *non-deductively* that p is possible from the possibility of q . For example, some modal claims are intrinsically similar to each other in a way that may seem relevant to modality. In the next few sections, we will investigate such cases. Our goal will be to find a non-deductive, defeasible inference rule that makes sense of non-deductive modal inferences. We will follow the discussion of “modal uniformity” principles given in Rasmussen 2014a.

The modal aid we offer is one of many aids. We don’t claim to offer the only helpful aid or an aid that is superior to all other aids. Rather, our “modal uniformity” principles supplement the aids we get from other tests, such as Chalmers’ conceivability tests, and from the other arguments we gave for our modal causal principles.

We shall proceed as follows. First, we will motivate a general, unrestricted “modal uniformity” principle. Second, we will search for more reliable, restricted versions of the principle. Third, we will show how one may use the various uniformity principles to support the causal principles of our previous arguments for a necessary being. Fourth, we will consider a “parody” objection and a reply. Finally, we will close by offering an assessment of modal cosmological arguments in general.

6.2 Uniformity as a Guide to Possibility

Aristotle writes, “[If] there were two bodies in the same place, it would also be true that any number of bodies could be together; for it is impossible to draw a line of division beyond which the statement would become untrue” (Aristotle 1994, 213b4–9). Notice that Aristotle isn’t claiming here that there actually *could* be two bodies in the same place. The claim, rather, is that if there could be, then other possibilities *follow*: for example, there could be three bodies in the same place, and there could be four, and five, and any number of bodies in the same place. The thought is that a difference in number of colocated bodies doesn’t seem to make a difference to whether the resulting colocation is possible. Even if you don’t think colocation is actually possible, you may appreciate the intuition that if colocation were possible, then any number of things could be colocated. We might say such colocation scenarios are “modally uniform.” For future reference, we will call a scenario involving colocated objects *COLOCATED*.

Consider another case. Suppose there is an infinite array of evenly spaced vases. As it happens, each vase is followed by another that is precisely two centimeters taller than the previous one: their heights are 2 cm, 4 cm, 6 cm, 8 cm, etc. Call this scenario *SIZE*. Here is a question: if there can be a sequence of vases with sizes spaced by 2 cm, could there be a sequence with sizes spaced by 3 cm (for example, 3 cm, 6 cm, 9 cm, 12 cm, . . .)? It would seem so. The idea that there could be vases of heights of an infinite variety of heights separated by 2 cm but that there could not be a sequence of vases of heights separated by 3 cm is highly counterintuitive.

We would like to identify a general principle that accounts for our judgments concerning *SIZE* and *COLOCATED*. To start, notice that in both cases we assume that a difference in number doesn’t make a difference with respect to possibility. With respect to *SIZE*, we assume that a vase of any arbitrary number of units tall is possible. Regarding *COLOCATED*, we assume that any number of things can be colocated if two things can be. Here is one principle that accounts for these results:

- (3) *Modal Uniformity*: Normally, if a proposition p differs from a proposition q by a mere quantity, then p is possibly true iff q is possibly true.

According to Modal Uniformity, a difference in mere quantity doesn't normally make a difference with respect to possibility. Let us say that propositions differ by a mere quantity if and only if they are expressible by sentences that differ with respect to a single quantitative term only. So, for example, *there are two colocated objects* differs in mere quantity from *there are three colocated objects* because they differ only with respect to the quantitative terms 'two' and 'three.' We treat the "normally" operator as an epistemic operator that expresses a defeasibility constraint: upon considering particular propositions that merely differ quantitatively, one has a *prima facie* reason to expect modal uniformity. That reason is defeasible, but where one lacks a defeater, one has some weight on the side of modal uniformity.

The principle accounts for many cases. For example, it accounts for our intuitions about SIZE: a difference with respect to vase size doesn't seem to make a difference with respect to the possibility of there being a vase of the given size. And it accounts for COLOCATED: a difference in the number of colocated objects doesn't seem to make a difference with respect to the possibility of there being the given number of co-located objects. Consider several other cases: first, if extended simples are possible, then an extended simple of any size would seem to be (broadly logically) possible; second, there is no upper bound on how many concrete objects could jointly exist; third, if qualitatively colorful objects are possible, then there could be a colorful object of any size; and so on. Each of these cases exhibits modal uniformity.

Still, there are many cases where modal uniformity is breached. For instance, 'There is one number two' and 'There are two number twos' differ merely quantitatively, while they also differ modally, the first being true and hence possible and the second being impossible. And the combination of 'There are 10 people' and 'There are 9.5 people' marks another breach in modal uniformity. There are many other breaches, and we'll discuss various classes of them in Section 6.3.

Despite the many breaches in modal uniformity, one could still think Modal Uniformity provides a helpful defeasible rule. For instance, suppose you have no reason whatsoever to affirm or deny that a certain claim *p* is possibly true. You then notice that *p* differs from a certain claim *q* by a mere quantity. Furthermore, you happen to be reasonably sure that *q* is possibly true. You might think that in this case, you now have

a reason—perhaps only a weak one—to think that p is also possibly true. Although the reason is not an ‘all things considered’ reason, you have made an epistemic gain.

On the other hand, one might hesitate to accept a principle as general as Modal Uniformity, even when it includes a defeasibility operator. We do seem to have an intuition that in *certain* contexts, some quantitative differences are modally irrelevant. The context specifies which differences matter and which do not. For instance, in *SIZE* the difference between whole and not-whole doesn’t matter. If they can differ by 2 cm, they can differ by 0.7 cm or even by 3.14159 . . . cm. Yet the difference between positive and negative clearly does matter: one cannot have an infinite sequence of vases where each is next to a vase that is taller by -2 cm. On the other hand, in *COLOCATED*, the difference between whole and not-whole matters, and so does the difference between positive and negative. There are other contexts, however, where the difference between negative and positive doesn’t matter. For instance, if you can have a cube with a charge of $+7$ Coulombs, you can have a cube with a charge of -12.3 Coulombs. So context matters. Perhaps what we can say in general is just this: if propositions p and q differ merely quantitatively, and if it seems that this quantitative difference is modally irrelevant, then one has a *prima facie* reason to think that p and q are modally uniform (i.e., either both are possible or both are impossible).

In any case, we will pursue a more restricted version of Modal Uniformity. Our goal will be to find a principle that is more secure while still applicable to a variety of cases.

We have one disclaimer to offer before we proceed. We do not claim that Modal Uniformity, or any restricted version of it, is a basic principle of reasoning. Perhaps modal uniformity principles fall out of more basic epistemological principles. For example, one might think that Modal Uniformity is implied by a general principle of induction: we infer that this A is possible because these other A s are possible. Or one might think that Modal Uniformity falls out of a principle of indifference: we infer that p is possible because it seems not to differ from q in relevant respects, and q is possible. Or one might think there is some other, more basic epistemic principle that lends credence to Modal Uniformity. We leave the matter open.

6.3 Restricted Modal Uniformity

We would like to identify a more specific, restricted principle of modal uniformity. Our goal is to find a principle that is more secure than Modal Uniformity and that is still general enough to be useful.²

Let us begin by cataloging several kinds of breaches in modal uniformity. First, there are contradictory propositions that differ by a mere quantity from propositions that are possibly true. Take, for example,

- (4) There are more than three people on the bus, and there are not more than *three* people on the bus.

That statement differs by a mere degree from

- (5) There are more than three people on the bus, and there are not more than *four* people on the bus.

In this case the quantitative difference is clearly relevant to modal uniformity.

Second, there are cases that arise from essential limitations of particular objects. For example, it is possible—since we assume it is actual—that Quine had 46 chromosomes from his beginning. It is narrowly logically consistent that Quine had 47 chromosomes from his beginning. But it seems impossible that Quine had 47 chromosomes from his beginning, though this proposition differs from the 46-chromosome proposition only numerically.

Third, modal uniformity is frequently breached where there are propositions about necessarily existing entities. Suppose there are necessary things, such as necessarily existent numbers. Then ‘There are zero even primes’ is not possibly true, while ‘There is one even prime’ is possibly true—since it is necessarily true. The propositions here are logically consistent, assuming that nominalism isn’t flatly contradictory. But they are not modally uniform.

Fortunately, we may avoid breaches of these kinds by narrowing our scope to propositions that are: (i) narrowly logically consistent, (ii) expressible without using twin-earthable terms (see Chapter 4,

² This section, like the previous one, is adapted from Rasmussen 2014a.

Section 4.4.1), and (iii) about *non*-necessarily existing entities. These conditions put our scope on propositions that are more like the ones in *SIZE* and *COLOCATED*, since the relevant propositions in those cases satisfy (i)–(iii). Furthermore, the conditions put the scope *away* from propositions like those featured in the cases given of modal disuniformity. In particular, condition (i) avoids cases where there are *contradictory* propositions that differ by a mere quantity from possibly true propositions. Condition (ii) avoids propositions about an individual or a general kind that has essential limitations beyond our immediate access. For example, in the chromosome case, the modal break arises from considering the essential limits of individuals, while in *SIZE* and *COLOCATED*, the focus is not on individuals, but on features (e.g., colocation and vase size) that we grasp immediately. Suppose we consider instead a situation about the general type, human. It is possible for a human to have 47 chromosomes from the beginning, as the case of Down Syndrome shows. However, even here there may still be a bound. For instance, it may be impossible for a human to have had 5 or 1000 chromosomes from the beginning. But if there is a boundary here, one fails to see precisely where it is because the term ‘human’ picks out a kind that includes causal-historical properties which none of us have *immediate* access to. (Compare: “water” picks out a kind that includes boundary-inducing properties, such as *being* H_2O , which we don’t have immediate access to. That’s why “water” is twin-earthable.) Finally, condition (iii) puts us away from modally disuniform propositions about *necessary* things (aside from the quantities, expressed by adjectives, with respect to which the propositions differ).

Each of the restricted principles we’ve considered is safer—more reliable—than the unrestricted uniformity principle. If we combine all three restrictions, we get an even safer principle. Call the resulting principle ‘ $M_{\text{restricted}}$ ’:

- (6) $M_{\text{restricted}}$: normally, if a proposition p differs from a proposition q by a mere quantity, and if p and q are (i) logically consistent, (ii) expressible without twin-earthable terms, and (iii) not about necessary things, then p is possibly true iff q is possibly true.

$M_{\text{restricted}}$ seems to account for many cases of modal uniformity. It is still defeasible. But it is more reliable than the unrestricted principle of modal uniformity. We take it that even the general statement may be reliable, to an extent, because it may provide defeasible evidence for

arbitrary cases. Still, we offer $M_{\text{restricted}}$ as an additional, more secure principle of modal uniformity.

At this point, one might wonder how the restricted and unrestricted principles are related to the nature of modality. What is it about necessity, for example, that gives rise to any defeasible principles of modal uniformity? And what explains the breaks in modal uniformity? $M_{\text{restricted}}$ includes what may appear to be ad hoc restrictions to Modal Uniformity—restrictions ostensibly having nothing at all to do with modality. So, if the restricted principle is indeed more reliable, what accounts for that? What makes the restricted principles any closer to tracking the modal facts than the unrestricted principles? Answers to these questions would bring a deeper understanding of the source of the reliability of modal uniformity principles—and may thus inspire greater confidence in the principles themselves.

These important questions are by no means easy to answer, but we have a few proposals to offer for further consideration. First, perhaps modal uniformity tends to hold because (i) *possibility* differs from *impossibility* in a basic, categorical way, and (ii) basic categorical differences don't easily turn on mere differences in degree. Plausibly, differences in degree tend to be too slight to account for the deep difference in a basic category. And plausibly, the difference between possibility and impossibility is deep and categorical: there are no intermediates, like less impossible or more possible.³ So, perhaps modal uniformity tends to hold because a difference in degree would normally be too slight to account for a difference with respect to the basic categories of possibility and necessity.

This answer is compatible with at least two options for understanding why breaks in uniformity occur where they do. The first is relatively pessimistic: it could be that there is, unfortunately, no general principle that explains where all or most of the breaks are. Reality may not be so neat and tidy. In that case, perhaps the best we can do is to consider particular cases (or domains of cases) to assess whether modal uniformity intuitively appears to hold in those cases (or domains of cases). We could still specify restricted principles to track those cases where modal uniformity seems to hold most reliably.

³ People sometimes use expressions like “that’s barely possible,” but they’re plausibly talking about degree of difficulty, not degree of modality.

On this option, we may still have a way to discern what is a reliable modal uniformity principle and what is not. Consider that we have modal intuitions about some particular cases. After all, it is our judgments about particular cases that allow us to identify counterexamples to the uniformity principles. So, if we assume that our intuitions about the counterexamples are reliable, then we may thereby assume that these intuitions give us a grasp of relevant modal facts. And if we can fine-tune our modal uniformity principles by appealing to various modal facts, then our fine-tuned principle will be more sensitive to more facts than the general principle. The idea here is that our intuitions about certain cases supply evidence concerning certain modal facts, and we can appeal to those facts when refining the principles. (The methodology here is particularist: from the particulars we get the methods.) So, perhaps we can expect that certain restricted principles will track the modal facts more closely than the unrestricted one. When a principle respects or captures more of the facts, this means it is more reliable.⁴

A second option is to explain modal breaks in terms of conflicts between different degrees of specificity contained within a modal statement. To illustrate, take the statement,

- (7) There is a thing that is 14-sided and less than 14-sided.

It features two degreed properties that can be generalized to: *being n-sided* and *being less than m-sided*. These properties are of course incompatible with each other when $m \leq n$. And they therefore mark a modal intersection between two axes of specifications, which are defined by n and m . That is to say, where n is less than m , co-exemplification is possible; otherwise, it's impossible. In this example, the modal claim (7) contains multiple axes of specification. Similarly, statements about the drinking capacity of a specific individual contain multiple specifications. Keith Lehrer, for example, has specific essential capacities. So, statements about amounts of milk Lehrer can drink while jumping on a trampoline (say) have multiple specifications: amount of milk and the specific person. Distinct specifications are sometimes incompatible with each other, resulting in a modal break (and a two-dimensional modal intersection). The idea, then, is that although a mere difference in a degree

⁴ We thank Nathan Ballantyne for giving us these thoughts about the relationship between the restricted principles and the unrestricted one.

or specification does not by itself normally have the power to produce a basic modal difference, differences in multiple specifications create ample opportunities for internal conflict among the different specifications. And multiple specifications increase the risk of modal breaks. On this proposal, $M_{\text{restricted}}$ is a more secure principle in part because it restricts, albeit somewhat artificially, the scope to statements that have (or are more likely to have) fewer axes of specification.

Of course, we have not explained why each and every modal break occurs where it does. There appear to be many different causes of modal breaks. What we are suggesting, instead, is that modal uniformity falls out of the general principle that differences in degree don't normally create differences in category: category inspires uniformity (at least in certain contexts).

6.4 Applications to Arguments from Contingency

We will now show how to use a principle of modal uniformity to support premises in our previous arguments for a necessary being.

6.4.1 *The Argument from Contingent Existence*

Here is a synopsis of the Argument from Contingent Existence (ACE). Causal principle: every plurality of contingent concrete things has a cause (or causes). But no contingent thing (or things) could cause the plurality of *all* contingent concrete things, for that would be circular. Therefore, there is a necessary thing capable of causing contingent things.

Here is a modal uniformity argument for the conclusion that ACE is sound in some possible world. Suppose one accepts that:

- (8) Possibly, there are finitely many contingent things, and 1% of them have a cause.⁵

Then by uniformity, one may infer that:

⁵ If you are a 'stuff' ontologist and don't think there could be a *number* of things, then run the argument in terms of some other measure, where it makes sense in your own terms to talk about percentages of contingent reality.

- (9) Possibly, there are finitely many contingent things, and 100% of them has a cause.

Now run ACE in the world where all 100% of contingent things (together) has a cause, and one has reason to infer that possibly, there is a necessary being—which entails that there is a necessary being.⁶

Of course, the uniformity-based inference can be defeated, in principle, if one has a reason to think that there cannot be a cause of the existence of all contingent things. Consider by comparison that there cannot be a cause of 100% of *everything* (assuming there cannot be circular causation). So there is a modal break in the general case. Still, Modal Uniformity may in principle give one at least some reason to leap. Suppose one *lacks* a reason to think that 100% of contingent reality must be different from other percentages in a way that is relevant to a causal requirement. Then one has reason to expect modal uniformity by default. Consider, by contrast, that there is a ready explanation for why there is no cause of *everything*: it could be because some portion of reality exists of *necessity*—and cannot have a cause. That’s helpful, since we have an independent reason to expect a modal break in the general case (namely, to avoid circular causation). Similarly, one could have a reason to expect a modal break with respect to portions of contingent reality. But without that, Modal Uniformity may supply some reason to think that ACE is possibly sound.

6.4.2 The Modal Argument from Beginnings

Let us summarize the Modal Argument from Beginnings (MAB). Start with the causal principle: for any (positive) situation, *s*, that can begin to obtain, there can be a causal explanation of *s*’s obtaining. There can

⁶ We could have argued from uniformity for ACE’s causal principle in the actual world. For example, suppose there is a way to partition contingent reality into a finite number of portions, x_1, x_2, \dots, x_n , where each portion is some positive percentage of the total, and such that x_1 must be caused. Then, if Modal Uniformity is right, one now has reason to infer that 100% of our contingent reality must be caused. But this argument has serious drawbacks. First, it requires that one accept that some percentage of our contingent reality *must* have a cause. Second, and more significant, the argument uses a twin-earthable term, “our contingent reality,” which rigidly refers to the actual contingent things. (Of course, if the twin-earth were in our world, the twin-earthers’ use of “our contingent reality” could have the same content as our use of it. But we defined a “twin-earthable” term as one that could be used by our duplicates with different content; these duplicates need not inhabit a twin-earth in *our* world.) As a result, the uniformity inference in this case is harder to justify.

be a beginning of the obtaining of there being some contingent concrete things. Therefore, there can be a causal explanation of there being some contingent concrete things. Now no contingent concrete thing could cause there to be some contingent concrete things (where there were previously none), for that would be circular. Therefore, there can be a necessary concrete thing, which implies that there is a necessary concrete thing.

$M_{\text{restricted}}$ supplies an independent reason in support of MAB's sub-conclusion that there can be a causal explanation of there being some contingent concrete things. For consider the following propositions:

(10) q_3 : There is a caused beginning of there being exactly three contingent concrete things.

(11) q_2 : There is a caused beginning of there being exactly two contingent concrete things.

(12) q_1 : There is a caused beginning of there being exactly one contingent concrete thing.

$M_{\text{restricted}}$ predicts that if q_3 is possibly true, then so are q_2 and q_1 . That is because these propositions differ by a mere quantity, and each is logically consistent, generic (twin-earthable), and not about necessary things.

Is q_3 possibly true? It is if the following scenario is possible. There are exactly two contingent concrete things, and they combine to produce a third contingent concrete thing. Then the joining of the two contingent concrete things causes there to be a beginning of there being exactly three contingent concrete things.

Alternatively, we could argue for the possibility of q_3 using $M_{\text{restricted}}$. We just require that the following scenario is possible. There are exactly n contingent concrete things (where n is finite).⁷ Those things somehow produce another contingent concrete thing (perhaps by some of them combining together). In this scenario, there is a cause of there being a beginning of exactly $n + 1$ contingent concreta. Then run the modal uniformity principle through the numbers until you get a beginning of exactly three contingent concrete things. Notice that these arguments do

⁷ We could alternatively express the argument in terms of the number of partitions of contingent concrete things, since even in worlds with infinitely many contingent concrete things, there may be a way to partition them into a finite number of partitions.

not presuppose that there could be a necessary being. In this way, one may find a reason to think that q_1 is possibly true.

We may now complete the path to a necessary being. Here are the remaining steps. Suppose q_1 is possibly true. Then there can be something that causes there to be exactly one contingent concrete thing. No contingent concrete thing could cause there to be exactly one contingent concrete thing, since that would be circular. (We assume that if the one contingent thing prevented there from being a second, it wouldn't thereby count as causing there to be exactly one, since its existence would not be *prior* to there being one; rather, it would more precisely be a cause of there not becoming more than one.) Therefore, there can be a necessary concrete thing. Therefore, there is a necessary concrete thing.

6.4.3 *The Weak Argument from Beginnings*

Consider, finally, the Weak Argument from Beginnings (WAB), which we developed in Chapter 5. That argument crucially required that there can be a cause of the exemplification of *being contingent*. The argument was that no contingent thing could cause the exemplification of *being contingent*, for that would be circular. Therefore, there can be a necessary thing that can cause something, which implies that there is a necessary being.

$M_{\text{restricted}}$ adds credence to the proposition that there can be a cause of the exemplification of *being contingent*. For consider the following propositions:

- (13) r_3 : There is a cause of there being exactly three contingent things.
- (14) r_2 : There is a cause of there being exactly two contingent things.
- (15) r_1 : There is a cause of there being exactly one contingent thing.

$M_{\text{restricted}}$ predicts that if r_3 is possibly true, then presumably so are r_2 and r_1 . That is because these propositions differ by a mere quantity, and each is logically consistent, generic, and not about necessary things. The rest of the argument follows the same pattern as the argument we just saw in Section 6.4.2. It is plausible that r_3 is possibly true, even if there is no necessary being, since it is plausible that there are exactly two contingent things that produce a third. Thus, by $M_{\text{restricted}}$, it is plausible that r_1 is possibly true. Thus, there can be something that causes there to be exactly one contingent thing. No contingent thing could cause there to be exactly 1 contingent thing, since that would be circular. Therefore,

there can be a necessary concrete thing. Therefore, there is a necessary concrete thing.

6.5 Objection

If one looks hard enough, one can find a pathway to nearly any conclusion. The argument from “modal uniformity” may indeed get us to the intended conclusion. But upon reflection, we can also find a pathway that uses “modal uniformity” to get us to the *opposite* conclusion—i.e. that there is no necessary being. For consider the following proposition:

- (16) s_n : There are exactly n concrete things, for $n \in \{0, 1, 2, \dots\}$.

By modal uniformity, we have a reason to think that all such propositions are possibly true if any are. Proposition s_k is possibly true, where k is the number of actual concrete things. So we have a reason to think that s_0 is also possibly true. But if s_0 is possibly true, then it is possible that there is no necessary concrete thing, from which it follows that there is no necessary being.

Reply: This objection is important because it reveals that modal uniformity arguments can, in principle, cut both ways. So, when considering any such argument we should be careful to investigate whether the same sort of reasoning could be used in an argument against our conclusion. If a principle of reasoning counts equally for and against some proposition p , then it is clearly dialectically ineffective to use that very principle in support of p . We’d reach a stalemate.

Does modal uniformity lead to a stalemate? We have a reason to think not. Consider, first, that it isn’t a contingent matter how many *necessary* concrete things there could be. If there are five necessary concrete things, then there cannot be four necessary concrete things. Therefore, each member in the series of propositions about how many concrete things there could be entails that there is a specific upper bound on how many necessary concrete things there are. But now suppose one has no reason to think that there is any specific number of necessary concrete things: maybe there are infinitely many, or maybe there is one or none. Then one will not be in a position to accept *any* member of the series of propositions about how many concrete things there could be. Thus, one will not be in a position to accept the premises in the modal uniformity argument against the existence of a necessary being.

Of course, someone might have a reason to think there is a specific upper bound on the number of necessary concrete things. But that reason will either be a reason to think that there are zero necessary concrete things, or it will be a reason to think there are some but no more than n necessary concrete things, for some positive n . In the second case, the argument from modal uniformity is superfluous, since one must then already have reason to accept its conclusion. And the first case is even less helpful, since it contradicts the conclusion of the modal uniformity argument. So it's hard to see how one could support the modal uniformity argument without already having a reason to think there is no necessary being.

The uniformity arguments we gave for a necessary being are importantly different. First, one could accept their premises without first making any assumptions about how many necessary beings there are. For example, n contingent objects might combine to cause there to be exactly $n + 1$ contingent objects, whether there are zero necessary beings or any other number.

Is there a better parallel argument from modal uniformity, one which is more equal to the arguments we gave for the existence of a necessary being? We are skeptical that there could in principle be such an argument. Any such argument will imply that there is some sort of modal uniformity with respect to the total number of necessary concrete things there could be. Yet we have independent reason not to accept such a uniformity. Again, the reason is that the number of necessary beings is not a contingent matter: if there can be none, then there *must* be none. By contrast, the arguments we gave do not presuppose anything about the number of necessary concrete things. Rather, we focused on the causability of explicitly *non-necessary* things. It is true that the existence of a necessary thing is implied by the end. But even then, we reach no conclusion about *how many* necessary things there could be—other than that there can be more than none.

6.6 Concluding Assessment

We have developed a tool for modal reasoning that may add some credence to various arguments for a necessary being. How much credence might they add? That's hard to say. Some uniformity principles are more reliable than others. But all of them admit of counterexamples. All of

them are defeasible. So, one must consider carefully whether there might be defeaters relevant to the particular cases. Moreover, we saw that there are “modal uniformity” arguments *against* a necessary being. We argued that those arguments aren’t nearly as secure as the “modal uniformity” arguments we gave for a necessary being. Yet they may still place *some* weight on the other side. We must weigh all these considerations carefully. Even still, a principle of modal uniformity can significantly aid our investigation of cosmological-type arguments for a necessary being.

7

From Necessary Abstracta to Necessary Concreta

7.1 Introduction

In this chapter, we develop an argument going back at least to Leibniz (2007 [1697]), with historical roots that reach back to Augustine's idea that numbers exist in the mind of God (Augustine 1993 [c.391–5], Book II). The argument has two basic ingredients: (i) there are some necessary abstracta, and (ii) abstracta depend on concreta. We'll offer arguments for (i) and (ii), and show how one might infer that there is a necessary being.

7.2 The Main Argument

Here is an outline of our argument, which we call 'The Argument from Abstracta':

- (1) Necessarily, there is an abstract object.¹
- (2) Necessarily, if there is an abstract object, there is a concrete object.
- (3) Possibly, there are no contingent concrete objects.
- (4) Therefore, possibly, there is an abstract object and no contingent concrete objects. ((1) and (3))
- (5) Therefore, possibly, there is a concrete object and no contingent concrete objects. ((2) and (4))
- (6) Therefore, possibly, there is a necessary concrete object. ((5))
- (7) Therefore, there is a necessary concrete object. ((6) and S5)

¹ Notice that (1) is actually weaker than the claim that there is a necessary abstract object.

Lines (4)–(7) follow from the premises, (1)–(3). So we will now consider arguments for the three premises.

7.3 Necessarily There Are Abstracta

7.3.1 *Truthbearers*

Consider the truth that $2 + 2 = 4$. It's necessarily true. But something can't be true unless it exists. So anything that is necessarily true exists necessarily. So the object, the truth that $2 + 2 = 4$, exists necessarily.² This object is either concrete or abstract. If it is concrete, then while we do not have an argument for (1) here, we still have the conclusion of our main argument, namely that there is a necessary concrete object. And if it is abstract, then we have (1). (Note that the argument works regardless of whether we take truths to be abstract propositions, sentence types, or sentence tokens. If they are abstract propositions or sentence types, they are abstract. If they are sentence tokens, they are concrete.)

The argument was too quick, however. There are several objections to consider. First, maybe some things are neither concrete nor abstract. We have defined an object as concrete provided that it is possibly a cause. But we have not defined an abstract object. Perhaps there is more to abstractness than being incapable of causation. For instance, maybe there could be material objects that are essentially causally inert, while no material object could be abstract. If so, then essentially inert material objects would be neither abstract nor concrete, in our sense of concreteness. Or perhaps regions of spacetime are causally inefficacious but not abstract.

We do not have a conclusive argument that everything must be either concrete or abstract. But is it plausible that the truth that $2 + 2 = 4$ is a necessarily existent object that is neither abstract nor concrete? The best candidates for causally inefficacious non-abstract entities are things like regions of spacetime or inert material objects. Those things are not plausibly necessary truths, if only because they are not themselves necessary. Could there be something else that is neither concrete nor abstract but exists necessarily and is a good candidate for being true? The only candidate that comes to our mind are the thoughts of a necessary

² We are using the term 'object' in the broadest sense to include anything in our widest domain of quantification. In other words, any instance of any category counts as an object.

being, if these thoughts do not count as abstract and are causally inert. But then there is a necessary being. So it doesn't block our destination.

A second, more powerful objection is to deny that there *is* something, a truthbearer, that necessarily has the property of truth. One way to motivate this objection is to take a certain deflationary view on which "is true" is simply a linguistic device to allow for certain idioms that have a quantificational form.³ So, for example, when we say that everything known is true, "everything" does not quantify over objects, and when we say that the content of ' $2 + 2 = 4$ ' is necessarily true, what we say does not imply that there is an object that is the content of ' $2 + 2 = 4$ ' which necessarily has the property of truth. Hence, this form of deflationism deflates the motivation for having necessarily existing truths. (Note that not all forms of deflationism have this consequence.⁴)

Excising truthbearers has drawbacks, however. Consider this dilemma: either we have some story that explains away the apparent quantification over truthbearers, or we do not. If not, the deflationism is too easy. Such a cheap nihilism can be had about *any* domain. One might, for instance, baldly deny that scientists are really quantifying over particles and hold that the claim that some electron is charged does not commit one to the existence of any entity having the property of charge. Such a denial might be justifiable in principle, but it should not be bald.

Thus, deflationism is far more plausible if it includes a story about what it is that grounds apparent quantification over truthbearers in the absence of truthbearers. One candidate—perhaps the best—currently available is a massively disjunctive story. So, for example,

- (8) John's favorite belief is necessarily true

is to be explained as:

- (9) John's favorite belief is that $2 + 2 = 4$, and necessarily $2 + 2 = 4$; or John's favorite belief is the belief that snow is purple, and necessarily snow is purple; or John's favorite belief is the belief that $2 + 2 = 5$, and necessarily $2 + 2 = 5$; or

where this is a disjunction of all disjuncts of the form 'John's favorite belief is that ϕ , and necessarily ϕ ', where ' ϕ ' is a meaningful sentence.

³ Cf. Balaguer 1998 or Strawson 1949.

⁴ See, for example, McGrath 1997.

There are many objections one could make to this kind of account,⁵ but it is not our point to defend those objections. Rather, we note that when we stated the account of “John’s favorite belief is necessarily true,” we did not actually *give* an infinite disjunction. Instead, we described it. We described it implicitly by giving a few disjuncts and then an ‘or’ followed by ellipses, and then we made the description more explicit by describing how the ellipses are to be filled in. What we described was an infinite sentence.

This infinite sentence that results from filling out the ellipses in (9) is either an infinite sentence type or an infinite sentence token. Consider, first, the option that it is a sentence type. Then we have something abstract: a sentence type, and indeed an untokened type. Now it might be that some sentence types do not exist necessarily. Thus, one might worry that sentence types in natural human languages do not exist necessarily, because the type depends on natural kinds like ‘sound’ and ‘color,’ and types that depend on such natural kinds would not exist in worlds where the natural kinds are not exemplified. But one could have a language whose sentence tokens do not depend on such natural kinds. For instance, we can imagine a language where a very powerful being expresses itself by controlling exactly how many objects there are in the universe, with each natural number of objects making some claim, say by virtue of the binary expansion of that number encoding something in that being’s language. Sentence types in that language do not depend on any natural kinds, and so there is no bar to their necessary existence. One might think that only tokened types exist, but we’ve already supposed that there are untokened types, since the infinite disjunctive sentence is not in fact tokened. So once we have admitted that there are untokened sentence types, it seems difficult to avoid granting that there are necessarily existing untokened sentence types—and hence necessarily existing abstracta.

What if our deflationist is describing an infinite sentence *token*? In that case, the deflationist is saying that this nonexistent infinite sentence token provides an account of an actual sentence token, (8). But something nonexistent cannot provide an account of anything. We might say that the nonexistent infinite sentence *would* provide an account of (8) if both the infinite sentence token and a token of (8) coexisted. But now it’s looking

⁵ See David 1994.

as if on this form of deflationism there literally is no account of (8). There just *would be* such an account if a certain infinite sentence were tokened. And surely then our deflationist is being unfair to herself: a deflationist does not say that there are no accounts of truth and truthbearer language.

The argument here is not unassailable. A Lewisian modal realist, for example, may suppose that (9) describes a sentence token (which would then count as John's favorite belief) that exists in some universe causally isolated from ours. But Lewisian modal realism is not cheap. Moreover, there is now the problem of accounting for how (9) could describe something without having any causal connection with it. How, for instance, does (9) manage to make reference to the particular individual John in the actual world? We have no idea.

Let us now consider a third challenge to our quick argument for necessary abstracta. This challenge is based upon the thesis that an object can have properties even if it does not exist. It is plausible, after all, that even in worlds where Socrates does not exist, it is true that Socrates is human. Similarly, then, while the truth that $2 + 2 = 4$ has the property of truth in all worlds, perhaps it only exists in some worlds. In that case, we have a necessary truth that doesn't necessarily exist.

The view that objects can have properties in worlds where they do not exist, however, sits poorly with bivalence. Suppose it makes sense to attribute properties to Socrates even when he does not exist. Then in any given world, we either have to attribute to him the property of being a philosopher or to attribute to him the lack of that property. In those worlds where he exists, this is easy. In some of them he is a philosopher in the perfectly ordinary way, while in others he is not. But in those worlds where he does not exist, there is no answer to the question whether he is a philosopher, and the question makes no sense.

One might try to answer the question whether Socrates is a philosopher at a world w where he does not exist by asking whether the counterfactual

(10) Were Socrates to exist, he would be a philosopher.

is true at w , or whether

(11) Were Socrates to exist, he would not be a philosopher.

is true at w . But, first, there are worlds where neither counterfactual is true, just as it is neither true that were the moon made of goat or sheep cheese, it would be made of goat cheese, or that were the moon made

of goat or sheep cheese, it would be made of sheep cheese. And, second, the counterfactual account gives the wrong answers. Consider a possible world w where Socrates was never born, and the most famous philosopher is Parmenides, but it is nonetheless true that were Socrates to exist, he would be the most famous philosopher. We do not want to conclude that at w , Socrates is identical with Parmenides, since each is the most famous philosopher at w on the counterfactual account.

Finally, one can try to defuse our original argument by bringing in the distinction between “truth in a world” and “truth at a world.”⁶ The idea is that a proposition p is true in a world w provided that at w it is the case that p is true. Given the seriously actualist assumption that something cannot have a property, in this case *truth*, if it does not exist, a proposition p can only be true in a world provided that at that world it exists. However, we may suppose there is also a binary relation *being true at* between propositions and worlds. A proposition p can stand in the *being true at* relation to a world without existing at that world, just as a person can stand in the *thinking about* relation to a world without existing at that world. Given serious actualism, a proposition p can only be true at w if p *actually* exists, just as a person can only think about w if the person exists at the *actual* world. There is no corresponding requirement that the proposition or person exist at w . Given this distinction, then, between truth in a world and truth at a world, one can object that when we say p is necessarily true (where p is, e.g., the truth that $2 + 2 = 4$), we have not said that it is necessary that p is true. Rather all that is said is that p is necessary, i.e., true *at* all worlds. And from the claim that p is true at all worlds one can no more immediately conclude that p exists at all worlds than one could immediately conclude from the claim that some supernatural intellect thinks about all worlds that it exists at all of them.

In reply, we might insist that when we started by saying that the truth that $2 + 2 = 4$ is necessarily true, we weren’t simply saying that $2 + 2 = 4$ is necessary. We were saying that it is necessary *that it is true that* $2 + 2 = 4$. Let p be the proposition that $2 + 2 = 4$. Our starting claim then was not that p is necessary. Rather, our starting claim was that q is necessary, where q is the second-order proposition that p is true. And the distinction between truth-at and truth-in does nothing to block the

⁶ See Fine 1982.

argument from the claim that q is necessary to the claim that p exists at all (possible) worlds.

For suppose w is a world. Suppose q is the proposition that ϕ , where ' ϕ ' is ' p is true' (recalling that p is the truth that $2 + 2 = 4$). Then q is necessary. So:

(12) For every world w , we have: ϕ at w .

Hence:

(13) For every world w , we have: (p is true) at w .

Hence, at w , p is true (true *simpliciter*). Hence, at w the truthbearer p exists as it has the property of truth.

Nonetheless, there is something right about the thought that the distinction between truth-at and truth-in challenges our argument. For while it does nothing to undercut the validity of our argument, the aficionado of the distinction may simply decline to grant our starting claim that the truth that $2 + 2 = 4$ is necessarily a truth, instead only granting the weaker claim that the truth that $2 + 2 = 4$ is necessary, i.e., true at all worlds.

However, it is far from easy to suppose that $2 + 2 = 4$ is necessary without also supposing that it is necessarily a truth. Consider, after all, that $2 + 2 = 4$ is necessarily a theorem of arithmetic, and necessarily all theorems of arithmetic are truths. Moreover, from S4, the necessity of $2 + 2 = 4$ entails the necessity that $2 + 2 = 4$ is necessary, from which we may deduce the necessity that $2 + 2 = 4$ is true.⁷

This last observation leads us to a more general difficulty with the objections centering on questions of truth. Notice that we can run our argument with other properties besides truth. For instance, necessarily, the proposition that $2 + 2 = 4$ is a theorem of arithmetic. Moreover, necessarily, all theorems of arithmetic are necessary. Thus, necessarily, the proposition is necessary. A fortiori, necessarily, it is possible—and

⁷ It won't work to suppose instead that $2 + 2 = 4$ is merely *essentially* true. For if we analyze necessary truths as truths that are essentially true, then we get wrong results. So, for example, if truths are sentence tokens, then 'There are sentence tokens' comes out necessarily true, since it is essentially true. More generally, if truths are not abstract, then presumably 'There are truths' should not come out necessarily true—though it comes out essentially true. See Plantinga 2003 and Rasmussen 2013.

hence of course, necessarily, it is consistent. Thus, we have four properties besides truth that the proposition that $2 + 2 = 4$ would seem to have of necessity: arithmetical theoremhood, necessity, possibility, and consistency. Any one of them would suffice for our argument. For instance, something can't have consistency unless it exists, and hence anything that is necessarily consistent exists necessarily.⁸

Moreover, a variant argument can be run with contingency. The truth that there are more than a thousand minds is contingent, and necessarily so. So that truth necessarily has a property, namely contingency, and hence exists in every possible world.

Of course, a sufficiently strong deflationist could say that there are only token sentences, and she could then deny that anything is necessarily true, necessarily a theorem, necessarily possible, necessarily consistent, or necessarily contingent. She could even say that before any intelligent beings evolved, nothing was true, a theorem, possible, consistent, or contingent. One can say these things, but then one faces the challenge of accounting for the apparent necessity of some truths, theorems, and modal properties. For example, it appears not just that the proposition $2 + 2 = 4$ is necessary, but also that the proposition *it is true that* $2 + 2 = 4$ is necessary (as with the theoremhood and modal features of $2 + 2 = 4$: they seem necessary). This appearance is also licenced by S4 (on an objectual interpretation), as noted. How should we account, then, for this appearance of necessity if in fact the proposition *it is true that* $2 + 2 = 4$ is not actually necessary? Maybe there is some way. From where we stand, however, it seems more plausible to accept the consequence that some truthbearers exist necessarily.⁹

7.3.2 Properties

We do not have anything to add to standard arguments for the necessary existence of properties, another paradigm example of abstract objects. We

⁸ For a fuller treatment of this sort of argument and additional replies, see Rasmussen 2013.

⁹ In case someone worries that our argument rests upon a conflation of the "use" of modal language with the "mention" of it, let us be clear. We *mention* propositions (understood minimally as truthbearers) to which we ascribe modal properties. We take it that the best account of our talk of necessities and possibilities in ordinary language is that they involve the ascription of modal properties to propositions.

review one argument here. van Inwagen (2004) has argued that there is something that spiders and ants have in common. What spiders and ants have in common is a feature, a property. Thus, there is at least one property.

One could then argue that properties exist necessarily by relying on the necessary existence of bearers that either instantiate the properties (say, the property of abstractness) or that have a property as a component. But that, of course, won't help us get an independent argument that there are necessarily existing abstracta.

Consider this argument. Suppose there is a world w that is empty of all properties. In w it is *possible* that there is something—a property P —that spiders and ants have in common, by the symmetry of the accessibility relation. The simplest (and best) way to analyze this possibility is this: P is possibly instantiated. But P can't have the feature of being possibly instantiated unless P exists (by serious actualism). So, P exists in a world that is empty of all properties—a contradiction. Therefore, a world empty of all properties is not a possible world.¹⁰

7.3.3 *Mathematical Entities*

There are infinitely many primes. Every prime is a number. So, there are infinitely many numbers. But why should our world be specially blessed with numbers in this way? The reasons for thinking our world has infinitely many primes will apply to every world. Thus, every world has infinitely many numbers. Necessarily all numbers are abstract. So, necessarily there are infinitely many abstract objects.

Also, suppose that the following plausible “easy ontology” one-premise argument¹¹ is valid:

- (14) There are three tables in the room.
- (15) So, the number of tables in the room is three. (By (14))
- (16) So, the number three exists. (By (15))

Analogous of this argument lead to the conclusion that the number one exists in every world in which there is at least one entity. Thus, if it is

¹⁰ Cf. van Inwagen 2004, pp. 137–8.

¹¹ For more on such easy ontology arguments, see Wright 1983 and Thomasson 2015.

impossible for there to be nothing, there necessarily exists at least one abstract entity, the number one.

But note now that (14)–(16) is no more plausible than:

(17) There are no unicorns on earth.

(18) So, the number of unicorns on earth is zero. (By (17))

(19) So, the number zero exists. (By (18))

Analogous of this argument lead to the conclusion that in every possible world in which something is lacking, the number zero exists. It follows that in every possible world, the number zero exists (pace Lowe 2005, pp. 86–7). For if the number zero doesn't exist in w , then something is lacking in w , namely a whole number less than one. Hence, the number zero exists in w —and we have a contradiction.

A similar easy ontology argument establishes that the empty set exists. Start with:

(20) Every dog is a mammal.

(21) So, the set of all dogs is a subset of the set of all mammals.
(By (20))

(22) So, there is a set of all dogs. (By (21))

This argument is actually sound. If it is actually sound, it is actually valid. If it is actually valid, then it is sound in all worlds where there are no dogs, since it is valid in those worlds and its one premise (20) is trivially true in them. Thus, the argument establishes that every world lacking dogs has the empty set. By an exactly parallel easy ontology argument starting with the premise that every set that is empty is a set and concluding that there is a set of all empty sets, we can conclude that the world that has no empty sets has a set of all empty sets—i.e., absurdly, an empty set—so there cannot be a world without an empty set.

The easy ontology argument for the empty set, however, has a problem. Consider this parallel argument, where we say that a set a is non-self-membered provided that a is not a member of itself ($a \notin a$):

(23) Every non-self-membered set is a set.

(24) So, the set of all non-self-membered sets is a subset of the set of all sets. (By (23))

(25) So, there is a set of all non-self-membered sets. (By (24))

But the conclusion is absurd, as famously discovered by Russell. For if a is the set of all non-self-membered sets (the Russell set), then a is either a member of itself or not. If it is a member of itself, then it's self-membered and hence isn't a member of a —since a contains only non-self-membered sets. But then if a isn't a member of a , it is non-self-membered—and we have a contradiction. Or, if a is not a member of itself, then it is non-self-membered, and hence it is a member of a , since a has all non-self-membered sets as members, and again we have a contradiction.

Since the conclusion of (23)–(25) is false, the argument must be unsound. But the one premise (23) is a tautology. So the argument must be invalid. The two steps in the argument are exactly parallel to those in (20)–(22). So (20)–(22) should be invalid. These results should make us suspicious of (14)–(16) and (17)–(19) as well.

One way out for the easy ontologist is to make either or both of the inferences in the easy ontology arguments defeasible. In the case of (23)–(25), the contradiction derivable from the conclusion provides such a defeater. But in the case of the other arguments, we have no defeater. This response, then, requires a modification of the strategy we employed in each case to argue for the *necessary* existence of the number one, the number zero and the empty set. That strategy required the argument to go through in worlds other than ours. But defeasible arguments, even if successful in our world, are apt to have false conclusions in some worlds.

However, we can still rescue our defeasible arguments. For example, consider the argument that the number zero necessarily exists. It won't work as stated. For the argument used the observation that if the number zero doesn't exist in a world, there will be zero zeros in it, and hence the number zero will exist. When the easy ontology inference is defeasible, this is dubious: the posited absence of the number zero seems to provide a defeater. But we can run a variant argument. In every world where there are no planets, there are zero planets, and so there is a zero. This argument may be defeasible, but all the worlds that enter into this argument are sufficiently similar with respect to numbers and planets that we would expect the argument to succeed in all or none of the worlds. And since the argument is inductively valid, it is more reasonable to say it succeeds in all rather than in none. Now consider every world which has planets. In each such world, there will be a planet that lacks some possible species of

animals, i.e., has zero members of that species, and so there will be zero.¹² So, zero exists at both the worlds without planets and those with planets. Again, this is a defeasible argument, but the cases are sufficiently parallel that either the argument succeeds in them all or it succeeds in none of them. If it succeeds in none of them, then (17)–(19) won't succeed either. But (17)–(19) appears quite successful.

A similar modification can be made of our argument for the necessary existence of the empty set. If every world has the empty set, it also has the number one by the easy ontology argument that there is *one* number zero—and so there is the number one. That argument might be defeasible. But all worlds are alike in respect to the argument's ingredients (namely, the existence of the number zero). So it succeeds in all or in no worlds. Since it succeeds in the actual world, it succeeds in them all.

Another way to rescue the zero and empty-set arguments is to add the following actuality–necessity bridge premises, which may be justified by their intuitive plausibility:

(26) If the number zero exists, it exists necessarily.

(27) If the empty set exists, it exists necessarily.

We might be less confident about the number one argument, then, because one might worry that numbers exist only when they are counts of concreta, and one might think there is a world with no concreta where the number one isn't a count of anything. So one might not want to grant a parallel actuality–necessity premise.

Perhaps the best way, however, of rescuing the easy ontology arguments is to say that the inferences depend implicitly on the premise that there is a coherent theory of the item whose existence we seek to infer. This premise is true in the case of one, zero, and the empty set. But it is false in the case of the Russell set. This simple solution seems to fit best with the fact that the easy ontology arguers think of the inferences in the arguments as unassailable rather than defeasible. Further constraints may need to be added (cf. Hale and Wright 2001). But given that in the literature numbers are paradigm instances of the application of easy ontology, it is plausible

¹² While perhaps there is a possible world where every possible species of animal is exemplified, no possible *planet* exemplifies every possible species of animal (if only because there are infinitely many mid-size animal species, while a planet cannot be infinite).

that the easy ontology arguments for them will survive any reasonable additions.

A final objection to the easy ontology should be noted. One can try to distinguish between lightweight and heavyweight existence, and say that you get what you pay for: easy ontology arguments give only lightweight existence, the kind of existence that holes, waves, shadows, and other dubious “entities” have. We are fine with this observation. All it requires is that (2) apply not only to heavily existing abstracta, but also to lightly existing abstracta. But it is quite plausible that the conceptualist and Aristotelian lines of thought on grounding abstracta that we discuss in Section 7.4 work just as well or even better for lightly existing abstracta.

7.3.4 *Against Abstracta*

These arguments point to problems with denying the necessary existence of abstracta. But there are also considerations which may weigh against having abstracta. First, the ontology becomes complicated by the introduction of additional “mysterious” abstract entities, and you might think that a theory that implies a complex ontology is less likely to be true than a theory that implies a less complex ontology, other things being equal. Second, abstracta are generally thought to be causally inert, and so we cannot have the right kind of epistemic contact with them.

However, given the full panoply of options discussed in this chapter, these considerations against abstracta are not decisive. In Section 7.4, one of the options we will argue in favor of is that abstracta are *grounded in* concreta. The problem of including abstract entities that are grounded in concrete ones does not go significantly beyond the problem of including concrete ones. Admittedly, however, an ontology that includes a necessary concrete ground of necessary abstracta is more complex than an ontology that lacks such a ground, though plausibly there are further explanatory advantages of including an ultimate ground for necessary abstracta. In Chapter 9, we will more carefully weigh the potential “costs” of having a necessary being at the foundation.

In any case, the mysteriousness of abstract entities should not be exaggerated. If the Platonist is right, we have intimate contact with such entities. We all know some of the features that ants and spiders have in common. We all believe many propositions. And we have learned to count in childhood. Granted, abstract entities are not spatiotemporal. But spatiotemporality is itself a very mysterious notion. It is far from clear that entities become more mysterious when they lack it.

Finally, the question of epistemic contact with abstracta is a serious one. Yet, we think that given the range of options available to us, the difficulties are reduced. For instance, even if abstracta are causally inert, they are likely to be grounded in causally efficacious entities, such as a necessary being. We can know facts about the future by being in causal contact with their causes. Plausibly we can know facts about causally inert beings by being in causal contact with their grounds. We will have more to say about this issue in Section 7.4.

7.4 If There Are Abstracta, There Are Concreta

A deeply held intuition is that, pace Plato, there is something not quite real about abstracta. To the non-philosopher, “abstract” is somewhat like “fake”: an abstract object is not *really* an object. It is, of course, useful to talk as if these things were real, but they are not *really real*. The non-philosopher may, of course, be completely mistaken here. Felinity might be every bit as real—or even more so, if Plato is right—as cats. But it would be better if we could do justice to this deeply held intuition, while still holding on to the arguments for the existence of abstracta. One way to do this is to say that abstracta are not something over and beyond concreta.

Historically, there have been two families of views like this. The conceptualist tradition held that abstracta are mental entities, entities whose being is dependent on minds. This is probably the tradition closest to the non-philosopher’s commonsensical view of numbers and the like. Here is a little argument for the dependency of propositions on thoughts. Necessarily, thoughts and propositions have these features in common: they are about things, they bear entailment relations, they exemplify truth and falsehood, and they are arguably built of more basic intentional components. These similarities are least surprising if propositions are thoughts or are essential components of thoughts. So suppose propositions essentially depend upon thoughts, whose home is a mind. Then, since necessarily whenever there is a mind, there is a concrete being whose mind that mind is (perhaps in some cases that being *is* its mind), it follows that, necessarily, if there are abstracta, there are concreta.¹³

The Aristotelian tradition, on the other hand, held that at least in paradigm cases abstracta depend on concrete entities that are their

¹³ Smith (1994) develops one version of this argument.

instances. This is, however, an oversimplification of the Aristotelian position. Even Aristotle is apt to agree that the form of a house exists in the mind of the architect.¹⁴ We can develop Aristotle's point here in a conceptualist direction, by saying that the conceptualist is right about some abstracta, but that other abstracta are grounded in their instances. But there is, we think, a more genuinely Aristotelian solution. Paradigm abstracta are grounded either in their instances or in objects with the causal power to produce instances. What is crucial about the architect, then, is that she is a potential cause of the house, not that she is just someone who happens to think about houses.

There is good reason for the Aristotelian to move away from a focus on minds here and towards a focus on causal powers. For one can have cases where there are no instances of a natural kind, while there are objects with the causal power to produce such instances. For example, two photons can collide to produce instances of charge, namely an electron-positron pair, and they would still have that power in a chargeless photonic world. And, while there are no single-horned equines, there are many species of single-horned equines that the actual world's equines could evolve into under appropriate (and causally possible) selective pressures. A sufficiently careful description of how the actual objects would interact to produce an instance of an unexemplified kind would allow one to make reference to that unexemplified kind (pace Kripke 1980, p. 24). We could even imagine two worlds in which theoretical biologists hypothesized a particular set of selective pressures leading to a particular species of single-horned equines, calling them "unicorns₅" (perhaps they hypothesized many such evolutionary paths, and this is the 5th path). In one world, however, unbeknownst to the biologists, there really were unicorns₅. We do not want to give a different story about the content of "unicorn₅" in these two worlds. Thus, if in the unicorn₅ world the content of the word "unicorn₅" is an abstract object, such as the species *unicorn₅*, then this object is also the content of the word in the unicorn₅less world.

And of course the Aristotelian or the conceptualist may limit the account we've given to *fundamental* abstract objects. Non-fundamental abstract objects might be grounded in more fundamental abstract objects.

¹⁴ (Aristotle, 1989, VII.7) expressly says that the art of building is the form of a house. But the art of building is presumably found in the mind of the architect or builder.

Perhaps, for instance, the fundamental abstract objects are properties and relations, and propositions are combinations of properties and relations (Rasmussen 2014b, pp. 85–119) while sets are plural existential propositions (Pruss 2011, Section IV.3.3.3). But assuming that we do not have a vicious grounding regress, it will still be the case that the existence of an abstract object requires the existence of a fundamental abstract object, and hence of a concrete object.

Assuming that there are abstract objects, the alternative to conceptualist and Aristotelian theories is a Platonism on which some abstract objects simply exist, not depending on anything concrete. Such a Platonism infamously carries serious epistemological and semantic challenges. While the conceptualist and the Aristotelian have plausible stories about how we gain epistemic and referential access to the abstracta—by having or interacting with minds that have conceived them, or by interacting with instances or causes of instances—it is more difficult for the Platonist to explain how it is that one knows about the Platonic entities. This wouldn't have been a serious problem for Plato himself. For Plato seems to have thought that the Forms were causally efficacious, and so the way is open to their causing our thoughts about them. Thus, in our terminology, Plato held that the Forms were concrete, and so he would have agreed that necessarily if there are abstracta, there are concreta.

The contemporary Platonist, however, holds that the Platonic entities are essentially causally inert. How we know about or even refer to them is now a mystery. Theistic Platonists sometimes try to bring in God to resolve this mystery: God instilled in us knowledge of the abstracta. Even if we bracket the question of whether this move doesn't simply shift the bump under the carpet to the question of how God knows about the Platonic entities, bringing God into the picture is not dialectically helpful. For the best forms of theism hold that God is a necessary being (pace Swinburne 2012). So even this approach supports our conditional that necessarily if there are abstracta, there are concrete beings, since a conditional whose conclusion is a necessary truth is itself necessarily true.

Generally speaking, it is plausible that we only know of the existence of entities of some ontological category provided that either these entities directly or indirectly impinge on our senses or the existence of these entities is grounded in concrete entities. In the former case, the abstract entities are themselves concrete, and hence their existence entails the existence of concrete entities. In the latter case, unless we accept the

implausible thesis that the grounds of abstracta shift categorically from world to world, being concrete in some worlds and non-concrete (or nonexistent) in others, we also get the conclusion that necessarily if there are abstracta, there are concreta.

We offer a final consideration. Suppose abstract propositions are not dependent upon concreta in a conceptualist or Aristotelian way. Then presumably they *at most* depend upon the reality of the things they are about, if they depend upon anything. If that is correct, then given any entities, there is automatically a proposition about just them—for example, the proposition that they exist. But that's impossible, for there can't be a proposition about *these* entities: all and only the propositions that aren't about themselves. That's because such a proposition is about itself if and only if it is not—a contradiction. To avoid this result, we should deny the starting assumption that abstract propositions are not concreta-dependent. (We leave it to the careful reader to investigate this argument in greater detail.)

7.5 It's Possible for There to Be No Contingent Concrete Entities

It is a tautology that every contingent concrete entity could fail to exist. The challenge is how to infer from this that it could be that every contingent concrete entity fails to exist, i.e., it could be that there are no contingent concrete entities at all. Our challenger here will agree that every particular contingent entity could fail to exist, but will insist that every world contains some contingent concrete entity or other. Call this thesis Necessary Contingency. The thesis seems to have been first proposed by Bergson (1998).

The proponent of Necessary Contingency is committed to a very odd claim. Say that an entity is draconic provided that it is a dragon or a (proper) part of a dragon. Our world is full of non-draconic entities—indeed, it is common sense to think that all our world's entities are non-draconic.¹⁵ Necessary Contingency entails the following surprising conditional:

¹⁵ Those who think we live in an infinite multiverse will disagree.

(28) Necessarily, if there are no contingent non-draconic entities, there are draconic entities.

For consider a world w where there are no non-draconic contingent entities. By Necessary Contingency, there must be at least one contingent entity at w . That contingent entity will either be a dragon or a part of one, and in either case there is a dragon.

The oddity of (28) can, however, be reduced if instead of seeing Necessary Contingency as an ad hoc thesis, we see it as flowing from its motivations.

One way to defend Necessary Contingency is to hold that all spatiotemporal entities are contingent, that spacetime requires spatiotemporal entities, and that existence and non-existence can make sense only in relation to a spacetime nexus within which the entities are said to exist or not exist (cf. Rundle 2004). Thus, to say that an object exists is to say that it is found in such a nexus, and to say it does not is to say it is not found in one. Such spatiotemporalism entails Necessary Contingency, since the claim that no contingent entities exist could make sense only in relation to a spacetime. Something must provide such a framework, then, and if it's not non-draconic entities, then it must be draconic ones. How satisfactory a defense of (28) this makes for is not clear, but it does appear to reduce the discomfort somewhat.

But it is false that existence and non-existence make sense only in relation to the framework provided by a spacetime. Either there are or there are not non-spatiotemporal objects. If there are, then their existence is not something relative to a spacetime framework. If there are not, then their non-existence is not relative to a spacetime framework. For it is trivial that no non-spatiotemporal entities exist in a nexus of spatiotemporal relations. But the claim that there are no non-spatiotemporal objects is far from trivial.

Furthermore, if there can be essentially causally inert spatiotemporal objects, then the spatiotemporal nexus line of thought does not actually deny (3). For causally inert spatiotemporal objects might suffice to provide a spatiotemporal nexus.

A related line of thought against Necessary Contingency is a subtraction argument applied to contingent concrete things.¹⁶ Here is a simple version of it:

¹⁶ See, for example, Baldwin 1996, Lowe 2002, Paseau 2002, Rodriguez-Pereyra 2002, Cameron 2007, Efrid 2009, and Hoffmann 2011.

(29) There is a possible world with finitely many concrete contingent entities.

(30) For any possible world w and any concrete contingent x in w there is a possible world w' such that every contingent concrete entity in w' is also in w but x is not in w' .

(31) So, there is a possible world where there are no concrete contingent entities.

The proof of (31) is easy. Since by (29) there is a world with finitely many concrete contingents, suppose that w is a possible world with the smallest possible number of concrete contingents, say n . If w has no concrete contingents, we are done. If w has $n > 0$ concrete contingents, apply (30) to generate a world w' that lacks some concrete contingent e from w but is such that all the concrete contingents of w' are in w . Then w' has at most $n - 1$ concrete contingents, which contradicts the assumption that w has the minimal number of concrete contingents.

Here, (30) is the subtractive intuition: one can take an entity away from a world without adding anything. One may, of course, have to subtract more things. For instance, if a photon is taken away from our world, then every fusion containing it has to be taken away as well. And if a strong essentiality of origins thesis is true, one will also have to take away all entities that had that photon in their causal history. But the crucial point is that one doesn't need to *add* anything to a world.

However, these arguments will be less compelling if one's motivation for Necessary Contingency is a rich Armstrongian ontology of contingent states of affairs. On this ontology, every world either contains the state of affairs of there being cats—call this state of affairs 'Catty'—or it contains the state of affairs of there not being cats—'Catless.' But no world contains both. Since it is possible for there to be cats and it is possible for there to be no cats, it follows that both Catty and Catless are contingent entities, but it is necessary that exactly one of them exists. The subtractive intuition (30) may not seem compelling to the Armstrongian who may insist that any world w' that lacks x contains some new contingent state of affairs, say *there not being x* .

Such an ontology of contingent states of affairs does have the somewhat implausible consequence that there couldn't be only finitely many contingent things in existence, since there would have to be infinitely many negative states of affairs. But there is a further difficulty. A contingent

state of affairs ontology is actually compatible with the thesis that there might be no concrete contingent entities. The examples we've looked at tell us only that given such an ontology there have to be infinitely many contingent entities, but nothing was done to show their concreteness. While cats are causally efficacious, it is far from clear that so are the states of affairs of there being cats, of there being no cats, or of there being a number of cats other than n . Any causal work that one might want to attribute to the states of affairs of there being cats is actually being done by the cats (or events involving their actions). To avoid pointless overdetermination (cf. Kim 1989 and Merricks 2001), it is reasonable to say that the state of affairs does not do the work.

More generally, it is quite plausible that all the causal work that one might want to attribute to any state of affairs is instead correctly attributable to events or substances that ground the state of affairs. The physicist does not need to invoke the entity *the state of affairs of this hydrogen atom having an electron and a proton* in her causal theory, and her science is not on that account incomplete. If this is right, then states of affairs—except perhaps ones that are identical with substances, events, or their fusions—are causally inert. If so, then they are by our definition non-concrete, and hence no challenge to the thesis that there might be no concrete contingents.

Perhaps, however, the best candidate for a causally efficacious state of affairs whose causal efficacy isn't instead correctly to be attributed to underlying events or substances is a more singular negative state of affairs. A number of theories of causation insist that we should make room for absences as causal relata. Thus, we might say that *the dog's not barking* attracted Sherlock Holmes' attention. And of course, every world either contains that dog or it contains that dog's not barking. So if *the dog's not barking* is concrete, every world contains a concrete entity—either this negative state of affairs or that dog.

We think, however, that it is not necessary to posit negative states of affairs as causes. The intuition that leads to such a posit is based on the observation that some causal explanations appropriately mention that something doesn't exist. But it is a mistake to think that causal explanations are simply statements of causes. When we say (going a step back, and apologizing to the reader for providing a spoiler to the Arthur Conan Doyle story) that the dog did not bark because there was no stranger to cause it to bark, that is indeed a causal explanation. But

this causal explanation does not involve causation but the absence of causation. The dog did not bark because no stranger caused a bark. This is a causal explanation because the concept of causation is explicit in it, as well as being implicit in the unstated premise that typically under such circumstances it is strangers that would cause barking. So we can agree that negative propositions can explain causally, while denying that negative states of affairs are causes. To be a cause requires having a causal power. But a negative state of affairs has no causal power. The causal power, if any, of a state of affairs comes from the causal powers of the fundamental entities in the universe, such as substances and fundamental events. But a negative state of affairs doesn't get its causal power from such things, and hence it has no causal power.

7.6 Weakening the Possibility of No Concreta

The main challenge to (3)—that possibly, there are no contingent concrete objects—inheres in metaphysical views on which it simply makes no sense to talk of situations without contingent concrete objects. However, anyone who accepts a view like that would surely still accept:

(32) Possibly, there are no contingent *minds*.

After all, it is surely metaphysically possible that there was a time before contingent minds (many people think this was actually true!), and surely reality could after such a time evolve in a way that would not give rise to contingent minds.

But one of the two traditions regarding how it is that abstracta necessarily require concreta was the conceptualist line that abstracta require concrete *minds*. Given this line, while we had to weaken (3) to (32), we get to strengthen (2) to:

(33) Necessarily, if there is an abstract object, there is a mind.

Then, exactly as before, we now conclude:

(34) There is a necessary mind.

Given that a necessarily existing mind must be the mind of a necessarily existing concrete entity, we conclude that there is a necessary being.

However, the Aristotelian line of thought also allows a way to make the argument without (3). The Aristotelian line of thought was that

there are two ways that a fundamental abstract object is grounded in something concrete: an abstract object can be grounded in an instance (either of the object itself or of a component of it) or in a causal power to produce an instance. This line allows for an argument based on these premises:

(35) Necessarily, if there is a fundamental abstract object x , there is a concrete instance or a causal power to produce an instance of x .

(36) There is a necessary and essentially fundamental abstract object x such that possibly there are no *contingent* instances or *contingent* causal powers to produce instances of x .

For let x be an abstract object as in (36). Then there will be a possible world where there are no contingent concrete instances or contingent objects with causal powers to produce instances. By (35), in that world there will thus have to be a necessary concrete instance or a necessary object with a causal power. So by S5:

(37) There is a necessary being.

Premise (36) is complex, but we can give examples. For instance, there will be a possible world where there are no charged objects and where no contingent object has a causal power to produce a charged object. So as long as *charge* is a fundamental and necessary abstractum, (36) will be true. One reason to think charge is necessary is that it is abstract, and you might think all abstracta are necessary. Here is further support. By S5, it is necessary that it is possible that something is charged. But it cannot be possible that something is charged unless the proposition that something is charged is possibly true. So it is necessary that there exists this possibly true proposition about charge. This little argument is controversial, but as we have seen, the main objections lead to problems of their own. So suppose there is a necessarily existent proposition about charge. It's plausible that the property, charge, figures into the essential nature of propositions about it. So, necessarily, charge exists. Then: in a world with laws of nature sufficiently different from ours, and without any supernatural contingent beings, there will be no charged beings and no beings with causal powers to produce charged beings, yet charge exists.

A different way to weaken (3) is to argue that no *finite number of finite entities* would suffice to ground the infinitely many abstracta—say, the numbers—that necessarily exist. Even if one is unsure whether a

world with no contingent entities is possible, one may be quite confident about the weaker claim that there is a possible world where all contingent entities are finite and there are only finitely many of them. For all we know, such a world is actual. If such a world is possible, then in that world, a necessary concrete thing or things is required if all the abstracta are to be grounded.

A final Aristotelian weakening of (3) would be to hold that possibly there are no contingent concrete *substances*, and then strengthen (2) to say that if there are abstracta, there are concrete substances. On Aristotelian grounds, all entities, including abstracta, are grounded in *substances* after all. This would sidestep the Armstrongian worry that every world has contingent concrete (though perhaps negative) states of affairs.

7.7 Concluding Assessment

The basic argument can be seen as having two main parts. First, there is the necessary existence of abstracta. Then there is the entailment from the necessity of abstracta to necessary concreta. One path goes through:

(38) Necessarily, there is at least one concrete object.

Then (3) claims that possibly there are no contingent concreta, from which we establish that there is at least one necessary being. As we saw in Section 7.6, one can follow an alternative path by weakening (3) at the cost of additional assumptions.

The most powerful attacks on the argument will come from nominalists and modern Platonists. The nominalists will reject the existence of abstracta and hence the necessary existence of abstracta, while the Platonists will reject the dependence of abstracta on concreta. These options have their drawbacks, as we argued. In a nutshell, the classic problem for the nominalist is how to account for the objectivity of our knowledge of abstract truths, like that there are infinitely many primes. Meanwhile, for the inert-abstracta Platonist the problem is to account for our access to these objective truths. Is it not better to embrace the existence of abstracta, but allow that they either are potentially causally efficacious or are grounded in potentially causally efficacious entities, thereby avoiding both problems?

We recognize that we have been traveling rocky terrain, with many difficult steps. We do think the steps we have taken are supportable. But some may prefer alternative routes. So, in the Appendix we will also offer some different routes to (6), which, when combined with the full version of (3), will yield the existence of a necessary being.

8

The Argument from Perfections

8.1 History and Introduction

One variant of Anselm's ontological argument¹ holds that a being that cannot fail to exist is greater than a being that can fail to exist, and so a perfect being cannot fail to exist. Leibniz famously claimed that the ontological argument omitted one crucial but intuitively plausible premise, namely that it is possible for a perfect to exist. Hartshorne (1962) and Plantinga (1977) then gave precise versions of the ontological argument with an explicit possibility premise (see Section 2.4 in Chapter 2 of this book). Gödel, however, has managed to give a variant argument that side-steps the possibility premise by giving a set of axioms about perfections that jointly entail the possibility of a perfect being, as well as the actuality of one (Sobel 1987). Gödel's argument in its original form leads to the unhappy conclusion that possibility, actuality, and necessity in general are coextensive—modal collapse. But Anderson (1990) has rescued the argument from this problem, and it has been further refined by Pruss (2009 and 2012a). However, throughout this history the argument was seen as an argument for the existence of God. We will give a simplified Gödelian argument that is aimed at our more modest thesis that there is a necessary being.

8.2 The Main Argument

The basic concept in Gödelian arguments is that of a *positive* property or feature. "Positive" here should be read in a non-strict sense as akin

¹ We are reading Anselm's "cannot be thought not to exist" (e.g., Anselm 2001 [c.1077], p. 39) as not just a necessary psychological claim, but as a way of affirming necessary existence.

to 'non-negative,' and the positivity here refers to value, rather than to existence as it did in Chapter 4. The notion of a positive feature generalizes the narrower notion of a perfection. Thus, while it is clearly a perfection to be morally good, it is not so clear that it is a perfection to be morally good or five feet tall. But this disjunctive feature will still count as positive for us. We assume here that we are working with an abundant notion of properties (though in Section 8.6 we will discuss a nominalist-friendly version of the argument). A property A can thus be negated ($\sim A$), conjoined with another property ($A \& B$) and so on.

We say that a property is possible if it is possible that it is instantiated, and that a property A entails a property B provided that necessarily anything that has A has B .

The argument starts with two formal axioms partly characterizing positivity:

- (1) If A is positive, then $\sim A$ is not positive.
- (2) If A is positive and A entails B , then B is positive.

We now add two non-formal assumptions:

- (3) Existing necessarily (N) is positive.
- (4) Possibly causing something (C) is positive.

The crucial observation now is that by (1) and (2):

- (5) If A and B are positive, then $A \& B$ is possible.

To see this, for a reductio suppose $A \& B$ is impossible. Then nothing can have both A and B , and so necessarily anything that has A lacks B . Thus, A entails $\sim B$. Hence $\sim B$ is positive by (2) since A is positive. By (1), B cannot be positive—and we have a contradiction.

It follows from (3), (4), and (5) that $N \& C$ is possibly instantiated. So, possibly, there is a necessarily existing entity that possibly causes something. By S5, much as in the ontological argument of Section 2.4 in Chapter 2:

- (6) There is a necessarily existing entity that possibly causes something.

And that's just to say that there is a necessary being.

We'll begin by discussing the different ways of understanding positivity and show how they lead to (1) and (2). Then we will discuss the two non-formal assumptions, and give an alternate formulation of the argument in terms of negative properties, which some readers may find more compelling. We shall then offer a nominalist-friendly version of the argument. Finally, we'll briefly discuss the relevance of the problem of evil and defend the argument against Oppy's recent critique of a version of the Gödelian argument.

8.3 Positivity and the Formal Axioms

8.3.1 *Schema or Quantification Over Second-order Properties*

The term "positive" in the argument probably does not correspond exactly to an intuitive notion of the positivity of a property because of the entailment axiom (2), which guarantees that if being *G* is a positive property, so is *being G or very weak* (cf. Oppy 2009b, pp. 359–60). Rather, "positive" is a technical term in the argument, and for the argument to succeed, we need to give an interpretation of that term such that the four premises (1)–(4) are true on that interpretation of the term "positive."

We could, thus, think of (1)–(4) either as providing an argument schema to be filled in with a particular interpretation of "positive," or as a family of arguments, one for each interpretation.

Or we could omit "positive" entirely from the argument, and have a one-premise argument with a complex quantification over second-order properties:

- (7) There is a second-order property *P* such that:
 - (i) if *A* has *P*, then $\sim A$ does not have *P*,
 - (ii) if *A* has *P* and *A* entails *B*, then *B* has *P*,
 - (iii) existing necessarily has *P*, and
 - (iv) causing something has *P*.
- (8) So, there is a necessarily existing entity that possibly causes something.

(The proof will be basically the same as before, but with an extra existential instantiation step corresponding to the second-order variable *P*.)

It could, we suppose, be the case that someone will disagree with (1)–(4) on each of our interpretations of “positive,” and not have any alternative interpretation to offer, but nonetheless have a conviction that (7) is true. After all, one can believe an existential claim without believing any instance of it: one can believe someone listened to Homer’s bardic performances, without believing any instancial claim of the form ‘*a* listened to Homer’s bardic performances.’

Nonetheless, we now proceed to consider four ways of filling out “positive” and specifically consider whether and how they make the two formal axioms (1) and (2) plausible.

8.3.2 *A Positive is Not Negative*

One can attempt to define the positive as the non-negative:

- (9) *A* is positive if and only if *A* is not negative.

While we will have a lot more to say about the negative in connection with the next interpretation, here we need only a vague notion of the negative as that which detracts from excellence. On this interpretation, our axioms (1) and (2) are respectively equivalent to:

- (10) If *A* is not negative, then $\sim A$ is negative.
 (11) If *A* entails *B* and *B* is negative, then *A* is negative.

Now, while (11) is quite plausible, (10) is implausible. To see this, note that (10), in conjunction with the plausible (11), entails:

- (12) If *A* and *B* are incompatible, then at least one of them is negative.

For suppose *A* is not negative. Thus, $\sim A$ is negative by (10). Since *A* and *B* are incompatible, *B* entails $\sim A$. Thus, *B* is negative by (11). And thus it cannot be that neither of *A* and *B* is negative. But (12) is false. For instance, existing in a world where the largest animal is a mammal is not negative; but likewise, it would not be negative to exist in a world where the largest animal is a reptile.

8.3.3 *Negation of a Positive is Negative*

The second interpretation also defines the positive in terms of the negative, but rather than defining the positive as what isn’t negative, it defines the positive as that whose negation is negative:

- (13) A is positive if and only if $\sim A$ is negative.²

We leave it as an easy exercise to the reader to verify that the premises (1)–(4) are then equivalent to:

- (14) If A is negative, then $\sim A$ is not negative.
 (15) If A entails B and B is negative, then A is negative.
 (16) Possible nonexistence is negative.
 (17) Incapability of causing is negative.

And more specifically, the conjunction of (1) and (2) is equivalent to the conjunction of (14) and (15).

Recall now the observation that being G or very weak is positive when being G is positive. This observation made it clear that “positive” wasn’t too close to the ordinary meaning. The analog of the observation now is that if being F is negative, then so is being F *and* not very weak. More generally, for any H , being F and H will be negative if F is negative. But one may worry that this is implausible when F is slightly negative while H is highly positive. For instance, having slightly below average vision is negative (certainly so if (15) holds, since it entails the clear negative of having below average vision), but having slightly below average vision and being a morally exemplary genius sure doesn’t sound negative.

Nonetheless, to have below average vision and be a morally exemplary genius is limiting. Such a person will be hawk-eyed mentally but not hawk-eyed physically. We can thus very naturally think of negative properties as ones that *limit* their possessors, that *detract* from their excellence.

If we do this, then (15) is quite plausible. While what entails a bad isn’t always bad (repenting of dishonesty isn’t bad, but entails having been dishonest, which is bad), what entails a limitation does limit.

² When thinking about this, it is tempting to formulate this as “The positive is the negation of the negative.” But that need not be true if one distinguishes a property from its double negation. For instance, being wise is positive, but it does not seem to be the negation of *any* property, positive, negative, or otherwise. It is, of course, *equivalent* to a negation of a property, since every property is (assuming classical logic) equivalent to its double negation, if two properties are said to be equivalent provided that each entails the other. But equivalence of properties is not identity. Loosely speaking, however, we may sometimes say that A and $\sim A$ are negations of each other, though more precisely $\sim A$ is the negation of A and A is the negation of $\sim A$. In this loose sense, we could talk of the positive as a negation of the negative.

But (14) is more controversial. Couldn't there be properties such that they and their negations are limiting? It is interesting to note here that to hold that there are such properties is already to deny all views on which there is at least one being with no limits, since if both A and $\sim A$ are limiting, then every being is limited, since every being has one of A and $\sim A$. This is more than just denying theism. A pantheist may very well also think there is an unlimited being. One of the motivations for pantheism, after all, is the concern that theism limits God by making God completely distinct from the universe. And while most polytheists posit definitively limited gods, there could be polytheists who think that one or more of the gods is or are without limitation.

We can prove (14) from (15) with the following premises:

(18) If A is negative and B is negative, then the disjunction $A \vee B$ is negative.

(19) Some property is not negative.

To see this, suppose for a reductio that both A and $\sim A$ are negative. Then by (18), $A \vee \sim A$ is negative. But $A \vee \sim A$ is entailed by every property. So: by (15), every property will be negative, contrary to (19).

The thought behind (18) is that A 's negativity ensures that any possessor of A has a limitation, and B 's negativity does so as well. But having $A \vee B$ ensures one has A or one has B , and hence ensures one has either the limitation coming from A or the limitation coming from B . It is negative to be stupid and it is negative to be weak, and so it is negative to be stupid or weak.

Moreover, (19) follows from (16)—or (17), for that matter. So we could replace (14) with (18) in our negative version of the Gödelian argument for a necessary being.

In fact, given (15), (18), and the assumption that there is at least one property, axiom (14) is *equivalent* to (19). One direction we have just seen. But if we have (14), then it's immediate that if there is a property, there is a property that is not negative (since if A is a property, it won't be that both A and $\sim A$ are negative). So the crucial intuitive question at issue behind (14) will be whether there is anything at all to the line of thought that one can classify properties as negative and positive.

For all this positive news, we have a negative report: we do not endorse (18). We shall return to the question of disjunctions of negative properties at the end of this section.

Still, we think premise (14)—that if A is negative, then $\sim A$ is not negative—is initially plausible. It is the sort of plausible principle that it is reasonable to accept unless there are counterexamples. Are there counterexamples? These would be cases of properties such that both the property and its negation are limiting.

The paradoxes for theism that involve omnipotence provide a useful collection of test cases. The ability to create a stone one cannot lift seems limiting of one's ability to lift stones, while the inability to create such a stone seems limiting of one's ability to create stones. While much has been written on this, the paradox of the stone does not provide a counterexample to (14). Maybe actually creating a stone one cannot lift would be limiting of one's ability to lift stones, but the mere *ability* to do so is no limit on one's ability to lift stones, just as the ability to create a donkey is no limit on one's ability to refrain from creating donkeys.

A more promising case might be where there is a tension between omnipotence and moral perfection. Being able to do wrong is limiting of one's moral excellence, since it means that one is not so virtuous that one is not even able to consider wrongdoing, while being unable to do wrong is limiting of one's power. Thus, both the ability to do wrong and the inability to do wrong are negative, contrary to (14).

As a first response, one might query whether being able to do wrong indeed limits one's moral excellence. After all, it may be that the ability to do wrong is required for the responsibility that is needed for moral excellence, and if so, then the ability to do wrong does not limit moral excellence but is a prerequisite of the highest form of it. We do not take this approach, however. We do think that being unable to do wrong owing solely to causes outside of one may take away moral responsibility. But when that inability is entirely due to oneself, without any external causes (as would, for instance, be the case for a morally perfect person who is a first cause), it is not so clear that responsibility is taken away.

Second, one might take inspiration from Aquinas' observation that doing wrong is itself a form of impotence (Aquinas 1920 [c.1265], I.25.3). One might expand Aquinas' brief thought as follows. To be an agent is to be a rational kind of being, but wrongdoing (as Aquinas and Kant agree) is always irrational. To act wrongly is to act contrary to one's rationality, and is a defect of acting, just as much as failing to achieve one's ends is. Being unable to fail or be defective is no limit on one. But is one's inability

to fail a limitation on one's power? This isn't clear: it seems that the kind of power we are talking about is the power of rational agents as such, and this power involves rationality. Being sane does not limit the power of a rational agent as such, even if it makes insane action impossible, and Aquinas thinks the same is true of moral perfection.

A somewhat different version of Aquinas' response would be to grant that being unable to do wrong (or to fail, for that matter) may be a limitation on one's power, but not every limitation on one's power is a limitation on one. A limitation on your feature *F* is only thereby a limitation on *you* when the feature itself is an excellence. Analgesics limit your pain, but do not limit you if the pain is not an excellence of you. We can now say that perhaps the inability to do wrong is a limitation on one's power, but it is not thereby a limitation on one. For the sense of "power" in which we can say that the inability to do wrong limits one's power is not a sense in which we should say that power is an excellence. It is power appropriate to a thing's nature that is an excellence. The tree's power to rot is perhaps no excellence, and so being unable to rot would not be limiting. Likewise, a rational being's ability to act in a morally defective way is no excellence, and a limitation on that ability is not a limitation on the rational being. And of course a non-rational being's inability to act in a morally defective way is no limitation on the non-rational being either (though the non-rational being's non-rationality may well be a limitation). So the inability to act in a morally defective way is not itself a limitation on any entity, as it limits no excellence.

It may, of course, be the case that when this inability is conjoined with something else—say, being a non-first being—the conjunction is limiting. Thus it may be that *we* would be limited by a being unable to do wrong, while a being that also has the excellence of being a first cause wouldn't be. But the relevant sense of "limiting" in our notion of negative properties should be that of what is by itself limiting, not that whose conjunction with something else is limiting.

Another suggestion by Aquinas provides a different response to the tension between moral perfection and power. Aquinas suggests that one can deny that God lacks the power to sin. Had God (*per impossibile*) willed wrong, God would have done wrong, just as "If a man is a donkey, he has four feet" (Aquinas 1920 [c.1265], I.25.3). This is much the same move that some compatibilists have used to allow that it can be impossible for one to will to act otherwise, but one nonetheless is able to act

otherwise. The compatibilist move is very controversial, but we need not be committed to it to make use of Aquinas' move. For ability and power are not the same thing. Thus, one might insist that the impossibility of doing something is compatible with the *power* to do it, while not being compatible with the *ability* to do it. And then one might say that limits on one's power are limits on one, but limits on one's ability need not be limits on one, much as in the context of the preceding Thomistic response. Or one might simply agree with the compatibilists.

A third kind of objection would be to consider particular moral excellences. For instance: it seems that perfect justice limits one morally, by limiting one's mercifulness. On the other hand, imperfect justice limits one morally by limiting one's justice. Indeed, apparently, the tension between justice and mercy was already used by medieval philosophers as a *prima facie* objection to Anselm's ontological argument.

But a perfect justice that excludes the possibility of mercy is not a moral excellence. Rather than "perfect," we should call it 'unalloyed.' Unalloyed justice, then, includes the disposition always to bestow a deserved punishment and always to bestow a deserved reward. Unalloyed justice does, indeed, limit one's mercifulness, and thus limits one morally and hence is a negative property. But the negation of unalloyed justice does not limit an individual. It is not a negative property. The same can be said about mercy. Unalloyed mercy—a disposition never to impose a punishment—is not a moral excellence. Unalloyed mercy limits one morally.

Alternately, one can say that justice and mercy are themselves only partial aspects of a deeper moral excellence, such as love. In that case, either justice and mercy are compatible, or else at least one of them is not a perfection and we can say that the perfections in the vicinity are, say, *love expressed in justice* and *love expressed in mercy*.

There is a structure to these counterexamples to (14). There is a pair of putatively good-making features *F* and *G*, say justice and mercy, or moral goodness and power. An extremist take on each feature appears to delimit the extremist take on the other feature. This then generates a counterexample to (14) because an extremist take on *F*—call it 'Ext *F*'—will appear to be negative by ruling out Ext *G*, and yet the denial of Ext *F* will also be negative, by limiting one from having the excellence of Ext *F*. But now consider the cases more finely. While Ext *F* rules out Ext *G*, that need not be a limiting of *G*. For the extremist take on *G* need not be a perfectly excellent version of *G*. We have two possibilities:

(20) Ext F delimits G away from perfect excellence.

(21) Ext F logically rules out Ext G but does not delimit G away from perfect excellence.

In cases of type (20), the tension gives us good reason to deny that the extremist version of F is really the kind of thing the ruling out of which implies negativity. Thus, the tension gives us good reason to deny that $\sim(\text{Ext } F)$ is negative. It seems, on the contrary, to be a very fine thing. And we can, at least sometimes, go further and say that Ext F isn't really a form of F anymore—the extremist take on a religion need not be a form of that religion anymore. (Compare here Aquinas' claim that immoral activity is a kind of impotence—so an ability to act morally is not really a form of power.) Thus, in cases like (20) we are led to affirm that Ext F is negative but $\sim(\text{Ext } F)$ is not. Extremist or unalloyed justice is a negative, and its absence is not.

On the other hand, in cases of type (21), we can affirm that Ext F is a good thing, affirm that $\sim(\text{Ext } F)$ is negative, but deny that Ext F is negative. In that case, we will have to also say that Ext G is negative. For if Ext F rules out Ext G , then Ext G entails the negative property $\sim(\text{Ext } F)$ (this argument uses (15)). The very fact that Ext F is a good thing and is ruled out by Ext G gives us reason to think that Ext G is negative. Alternately, we can affirm that Ext G is a good thing, affirm that $\sim(\text{Ext } G)$ is negative and deny that Ext G is negative. We will then be forced to say that Ext F is negative. In theory, it could be that both options are problematic, but we haven't come across such a case yet. For instance, in the case of goodness and power, it is very natural to say that perfect goodness is a good thing, its negation is negative, and the extremist take on power is negative as well.

This structure makes it plausible that counterexamples will be difficult to find and defend. Together with the intuitive appeal of (14), we have good reason to believe (14).

Perhaps the deepest objection, however, will be this. The claim that a property *limits* an individual is ambiguous between the claim that the property *entails having a limitation* and the claim that it *in and of itself limits* the individual (we might try to explain this in terms of relevant entailment, or just leave it as it is). Suppose we take the first understanding of limiting, and hence of negativity. Then (15) is trivial. But since necessarily everything has some limitation or other, it follows

that every property entails having a limitation, and hence every property limits and (14) is false. On the other hand, if we take the second reading of limiting, then (15) is false. For *knowing oneself to be limited* doesn't in and of itself limit a person (it's a good thing to know oneself to be limited if one is limited), but it does entail having a limitation. So on either reading, the conjunction of (14) and (15) is false.

But the options being offered here are not exhaustive. For there is a third way of limiting an individual: by entailing a property that in and of itself limits the individual. This is different from entailing a property that entails a limitation. For instance, perhaps the example given, that being weak or stupid is negative, is mistaken. Being weak in and of itself limits the individual, as does being stupid. But disjunctions don't in and of themselves limit individuals. And it is not at all clear that the disjunction entails any property that in and of itself limits the possessor.

Further, we find the claim that necessarily everything has some limitation or other to be highly implausible. That claim seems to overly restrict the space of possibilities. Thus, it seems to us that unless a plausible example of a property *A* such that both *A* and $\sim A$ are limiting can be exhibited, the presumption is that (14) is true.

While we reject the "in and of itself limits" reading of limiting, we remain neutral between "entails having some limitation or other" and "entails a property that in and of itself limits" (variant: "entails a specific limitation").

8.3.4 *Detraction*

Pruss (2009) offered the definition that a positive property is one that does not detract from excellence but whose negation detracts from excellence. If we take "detracts from excellence" to be a way of glossing 'is negative' or 'limits,' then this definition is equivalent to a combination of the definitions of Sections 8.3.2 and 8.3.3:

- (22) *A* is positive if and only if *A* is not negative and $\sim A$ is negative.

On this definition, (1) is trivial. If *A* is positive, then $\sim A$ is negative, and so it cannot be positive as well. Now, (2) will be equivalent to:

- (23) If *A* is not negative and $\sim A$ is negative, and *A* entails *B*, then *B* is not negative and $\sim B$ is negative.

This claim is complex. We get a part of it from the very plausible (11) (also numbered as (15)): if A is not negative, and A entails B , then B is not negative. Thus if the antecedent in (23) holds, plausibly so does the first conjunct in the consequent. What about the second conjunct? Well, A entails B if and only if $\sim B$ entails $\sim A$. If $\sim A$ is negative, then by a second application of (11), we get that $\sim B$ entails $\sim A$, and so if the antecedent in (23) holds, so does the consequent.

Thus, on this definition, to prove (1) and (2), we need only one axiom, (15): whatever entails a negative is negative. Since (15) is very plausible, the complicated discussion in Section 8.3.3 of potential counterexamples to (14) seems out of place.

But that would be too quick. Difficulties in philosophy do not disappear so quickly, but rather move like bumps under carpets. The biggest objection in Section 8.3.3 was the final concern that necessarily everything has some limitation. That concern can be motivated by tensions like the justice–mercy tension, but can go beyond them. If necessarily everything has some limitation, and if entailing having some limitation or other is limiting, then no property is positive. So even though we have neatly removed the difficulties with (14) as such, the line of thought that made (14) seem potentially problematic can motivate one to worry that the whole discussion of positivity trivializes—since there are no positive properties. And in that case there is no hope for the non-formal premises (3) and (4) to be true.

Nonetheless, we find our response in Section 8.3.3 to the final concern plausible. That said, we recognize that we have a question to keep in mind when it comes time to argue for (3) and (4): are there any positive properties at all?

8.3.5 *Atomic Properties*

In a letter, Leibniz (Gerhardt 1880, pp. 295–6) claimed to have a proof that a perfect being was possible in terms of his logic (“*caractéristique*”). Leibniz’s logic appeared to reduce all concepts to combinations of simple concepts (“*les pensées simples*”), and all incompatibility is ultimately to be reduced to the incompatibility between a basic concept and its negation. Consequently, any concept that is just a conjunction of atomic concepts is automatically consistent.

Although we will leave aside Leibniz’s condition for incompatibility, his notion of “simple concept” inspires another interpretation of our schema.

Working analogously in terms of properties rather than concepts, we may define an *atomically* positive property as a property that is entailed by a property that is positive and atomic (simple). (Leibniz thought that all atomic properties are positive, and so on his view, we could equivalently say that an atomically positive property is any property that is entailed by an atomic property.) Then our formal axioms become:

- (24) If A is atomically positive, then $\sim A$ is not atomically positive.
- (25) If A is atomically positive and A entails B , then B is atomically positive.

Axiom (24) is plausible on an intuitive understanding of “positive” as value-contributing. So, for example, if moral perfection is value-contributing, then *not* having moral perfection is not itself value-contributing. The atomicity of a positive property doesn’t undermine this result; if anything, it makes it all the more secure. Next, (25) is trivially true by the transitivity of entailment.

Then we’ll need the non-formal premises:

- (26) N is atomically positive.
- (27) C is atomically positive.

We will return to these premises in sections 8.4 and 8.5, where we consider the positivity of N and C , respectively.

8.4 Necessary Existence is Positive

The simplest path to premise (3) is the direct intuition that necessary existence is a kind of robust independence that is surely positive. Findlay (1948) in his classic argument against the existence of God relies on intuitions like this to establish that God, if God existed, would exist necessarily (and then argues, relying on an inadequate account of necessity³, that a necessary being is impossible).

A more sophisticated strategy for arguing that necessary existence is positive is to adduce another property, A , that is very plausibly positive and that entails necessary existence, N . Then the positivity of N follows from (2).

³ Findlay seems to accept a version of the narrow logical necessity account that we argue against in Chapter 2.

For instance, it is a positive property to be able to achieve one's rational ends. But the more robust this ability—the greater the range of circumstances in which one can achieve one's rational ends—the more positive the property. Plausibly, then, being able in every possible circumstance to achieve one's ends is highly positive, and hence positive. But one cannot have an ability without existing. So having this maximally robust ability to achieve one's rational ends entails existing in all possible circumstances, i.e., existing in every possible world.

Likewise, it is a positive property to be capable of knowing some specific possibly true proposition p . Again, the greater the range of propositions one is capable of knowing, the more positive the property. The property, K , of being able to know p for every possibly true proposition is very much positive. But if x is a contingent entity, then *that x does not exist* is a possibly true proposition. Thus, necessarily, if a contingent x has K , this x has to be capable of knowing that x doesn't exist. But the consequent is impossible: it is impossible for something to know that it doesn't exist because one can only know what is true, and if one doesn't exist, one can't know anything. Thus, necessarily, if x has K , then x exists necessarily, and so K entails N .

We leave it to the creative reader to come up with other examples.

These considerations make it plausible, given the plausibility of (2), that necessary existence is a positive property. Let us now see how the intuitions given fare on the three more precise accounts of positivity that we did not dismiss.

The first account (Section 8.3.3) made a property be positive provided that its negation is negative. The negation of necessary existence is possible nonexistence. The bare intuition that necessary existence is positive is on a par with the intuition that possible nonexistence is negative. Likewise, having possible circumstances where one cannot achieve one's rational ends and being such that there is a possibly true proposition that one couldn't know are very plausibly negative properties. Thus our intuitions do well here.

The second account (Section 8.3.4) was conjunctive. For A to be positive, we need both that $\sim A$ is negative and that A is not negative. Again, the intuitions hold fast. All we need to add is the direct intuition that there is nothing negative about necessary existence, or about being able to rationally succeed in all circumstances, or about being able to know every possible truth.

Things are somewhat more difficult on our Leibnizian account (Section 8.3.5), where a property is positive provided that it is entailed by an atomic, positive (value-contributing) property. For it is not an easy matter to determine which properties are atomic. Nevertheless, one could find it plausible that *perfection* is atomic and positive. Moreover, one could find it plausible that perfection entails other positive properties, including the property of being able to rationally succeed in all circumstances, which in turn entails necessary existence. Then necessary existence comes out as (atomically) positive.

In any case, whether or not the Leibnizian account succeeds, we have hope of defending (3) on at least one of our accounts of positivity—and we need only one.

But there is a hitch on all our accounts. What if necessary existence is simply impossible to instantiate? Then it cannot be positive on any account on which (1) and (2) hold, because by (5), the conjunction of two positive properties is possibly instantiated, and so if N cannot be instantiated, then neither can $N \ \& \ N$, and thus N cannot be positive.

First, however, note that there not only is good reason to think that necessary existence is possible to instantiate, but that it is actually instantiated—if only by some abstracta (see Chapter 7).

Second, there is a dialectical point here. Leibniz claimed that there was a presumption of possibility in the absence of good arguments to the contrary and used this to support the possibility of a necessary being. His strong claim of a presumption can be controverted, but we have more here than the absence of good arguments to the contrary. We have intuitions in favor of the *positivity* of necessary existence. These intuitions are defeasible. But ‘Maybe the conclusion is false’ does not defeat an argument. Moreover, developing a sound *argument* against the existence of necessary things is far from easy, as we shall see in Chapter 9.

8.5 Being Capable of Causing is Positive

Being capable of causing a good is positive and so by (2), being capable of causing is positive. Thus intuitively, on an unelaborated version of our Gödelian argument, we get (4).

Being incapable of causing good is negative and so by (15) we get that being incapable of causing is negative. It is also very plausible that this

inability is not positive. So we also get (4) on either of the elaborations of Sections 8.3.3 and 8.3.4.

On the Leibnizian account, again, we need more speculation. It is fairly plausible, though, that a fundamental causal power is an irreducible property. This may seem trivial. But it's not trivial. A fundamental causal power is fundamental among causal powers—i.e., is not founded in another causal power. The thesis that fundamental causal powers are simply fundamental is a substantial thesis, and Humeans will deny it. Nonetheless, it is a plausible thesis because of the explanatory advantages of causal power metaphysics (e.g., Mumford 2011, Pruss 2011, Groff and Greco 2013, and Jacobs 2017). But irreducible properties are our best candidates for atomic properties. Suppose, then, F is a fundamental causal power, and is an atomic property. Then F entails C , the property of being capable of causing something. Thus C is (atomically) positive. Moreover, as before, one could find it plausible that *perfection* is atomic and entails positive properties, including being able to rationally succeed in all circumstances, which in turn entails C . Thus once again C is (atomically) positive.

8.6 Doing Without Properties

The Gödelian argument was formulated in terms of positive *properties*, and thus on its face presupposed property Platonism. Moreover, the argument for the crucial thesis (5) assumed that if A and B are properties, there is a property $A \ \& \ B$ which is the conjunction of A and B , and moreover that every property A has a negation $\sim A$. In other words, we not only required property Platonism, but *abundant* property Platonism, which posits not just fundamental properties but also their logical combinations.

But while the assumption of abundant property Platonism is convenient, it is inessential. The variables A and B in axioms (1) and (2) can range over predicates instead, as long as we stipulate that a predicate P entails a predicate Q provided that necessarily anything that is P is Q : $\Box \forall x (Px \rightarrow Qx)$. It is very plausible that any two predicates have a conjunction and any predicate has a negation,⁴ and the argument for (5)

⁴ One may be worried about the heterologicality paradox here. Say that a predicate is homological if it applies to itself. If 'is homological' has a negation, then there is a predicate 'is not homological', and we can ask whether that predicate applies to itself, obtaining a

goes through if we stipulate that a predicate P is possible provided that possibly something is P : $\Diamond\exists x(Px)$. Our non-formal assumptions (3) and (4) then have obvious reformulations in terms of predicates:

(28) “Exists necessarily” is positive.

(29) “Possibly causes something” is positive.

And the argument that leads to the conclusion that there is a necessary being then goes through with the obvious modifications.

Of course, predicates are abstract entities. So the reformulated argument appears to depend on a version of Platonism as well. However, even this can be eliminated, since the variables in the argument can be taken to range over predicate tokens. There are, of course, well-known difficulties in reducing linguistic types to linguistic tokens, but these difficulties do not apply here. For instance, the main difficulty is that there surely are untokened linguistic types. However, our argument only needs to make use of predicates like “exists necessarily” and “possibly causes something,” which certainly have tokens—indeed, the careful reader can find tokens of these two predicates in this chapter.

The Gödelian argument, then, can be given a nominalist-friendly formulation. For the sake of simplicity, we shall continue to work with the Platonist version, however.

8.7 Theism and the Problem of Evil

The Gödelian argument is different from the other arguments of this book in that it can be easily extended to establish something very close to classical theism. Here is one way to extend the argument. Say that a property is *uniquelizing* providing that it is impossible that two entities have that property. For instance, being the tallest woman is uniquelizing. Next say that a property A is *strongly* positive provided that *having* A *essentially* is positive. (By (2), if A is strongly positive, then it's positive.)

contradiction in either case. One way to block the paradox is to deny that ‘is homological’ has a negation. It is not clear that that is a satisfactory solution. For it seems that ‘is homological’ is already paradoxical: it leads to a truth-value gap, it being ad hoc to say it applies to itself or to deny that it does so. But in any case, we take care not to use predicates (or properties, in the earlier version) of a sort that give rise to such paradoxes.

The following thesis is quite plausible:

- (30) Some unqualizing property is strongly positive.

For instance, plausibly, being the cause of all other concrete entities is strongly positive, and it is unqualizing if causation cannot be circular. Likewise, plausibly, being omnipotent is strongly positive, but it seems impossible for there to be two omnipotent entities, since each one's power would be limited by the other's will.⁵

It turns out that (1), (2), (3), and (30) implies:

- (31) There is a necessarily existing entity that essentially has all strongly positive properties.

For let U be a unqualizing strongly positive property, by (30). By (5) and (3), possibly something essentially has U and exists necessarily. By S5, there is something that essentially has U and exists necessarily. Let's say that Umberto is such a being, and let A be any strongly positive property. Then EA , the property of having A essentially, is positive by definition of a strongly positive property. By (5), EA is compossible with U . Thus there is a possible world w at which there is a being, x , that has both EA and U . But Umberto exists at every world and has U at every world. Thus, Umberto exists at w and has U there. Since U is unqualizing, it follows that x is identical with Umberto at w . Therefore, Umberto has EA at w . Thus, it is true at w that Umberto necessarily has A . By S5, it follows that at the actual world it is also the case that Umberto necessarily has A . Hence, Umberto essentially has A . Thus, Umberto essentially has every strongly positive property.

Now, the following theses are about as plausible as (3) and (4):

- (32) Omnipotence is strongly positive.
 (33) Omniscience is strongly positive.
 (34) Perfect goodness is strongly positive.

Given this, by (31) it follows that there is a necessarily existing essentially omnipotent, omniscient, and perfectly good being. But any such being is an excellent candidate for being the God of classical theism, especially if

⁵ If this claim is to be consistent with Christian theism, the *persons* in the doctrine of the Trinity are not going to count as distinct *entities* (else are not individually omnipotent).

we remember that by (31) the being must have all other strongly positive properties as well.⁶

This result—that an easy extension of the Gödelian argument yields the necessary existence of an essentially omnipotent, omniscient, and perfectly good being—makes the argument more directly philosophically significant than our other main arguments. But it also makes the argument more vulnerable to refutation by means of the problem of evil. Three forms of the problem are relevant: (i) the classical deductive version that claims that there is evil and evil cannot coexist with an omnipotent, omniscient, and perfectly good being (e.g., Mackie 1955), (ii) more recent inductive versions that claim that the evils of this world strongly disconfirm the existence of such a being (Rowe 1979), or (iii) the modal version that claims that possibly there are evils incompatible with the existence of an omnipotent, omniscient, and perfectly good being, and hence by S5 that there is no necessarily existing essentially omnipotent, essentially omniscient, and essentially perfectly good being (Gulesarian 1983).

It would go beyond the scope of this book to respond to all three versions of the problem of evil. We can say very briefly that we take the various free will defenses to have decisively refuted the classical deductive version.⁷ The contemporary inductive versions are more troubling, but we do not think their authors have done enough to satisfactorily distinguish them from the anomaly-mongering that can be brought against just about every wide-ranging theory (Dougherty and Pruss 2014).

The modal version of the problem of evil is actually most troubling given the weight that some of the arguments of this book afford to modal intuitions. Our own modal intuitions in the end make the assumptions of the Gödelian argument for theism more plausible than the modal intuition behind the modal argument from evil. However, we do not need to rely on our intuitions in this book, since we are not arguing for theism here. Suppose that for the sake of the argument we accept the intuition behind the modal argument from evil. It will follow that there is no necessarily existing essentially omnipotent, essentially omniscient, and

⁶ Our Leibnizian argument in terms of “atomically positive” properties gives another route to this result, with the assumption that perfection is an atomic property that entails all positive properties.

⁷ See the Molinist free will defense in Plantinga 1974 (but note the criticism in Pruss 2012b), and non-Molinist alternatives in, e.g., Adams 1977 and Pruss 2003a.

essentially perfect good being. Thus, at least one of the assumptions from among (1)–(3), (30), (32)–(34) will be false. There are seven assumptions here. Only the first three of these assumptions, (1)–(3), plus additionally (4), are needed to reach the thesis of this book, that there is a necessary being. Moreover, assumptions (30) and (32)–(34) are significantly more complex than (1)–(4), and hence we might well be less confident of them than of (1)–(4). This is particularly going to be the case when we reflect on the difficulties in analyzing the concept of omnipotence in (33).

Thus a reasonable approach for someone who accepts the modal argument from evil is to continue to accept the Gödelian argument for a necessary being, while rejecting the Gödelian argument for theism. And the same move can be made with respect to the deductive and inductive arguments from actual evil.

8.8 Oppy's Parody

Oppy (2009b) has offered the following parody of one version of the Gödelian ontological argument. We will modify the parody to work with slightly weaker assumptions than Oppy's. Say that a property is *natural_O* ("natural" in Oppy's sense) provided that its instantiation doesn't entail that there is anything (any object, any state of affairs, etc.) supernatural, where we say that a property *A* entails a proposition *p* if and only if the proposition that *A* is instantiated entails *p*. Then, plausibly:

(35) If *A* is *natural_O*, $\sim A$ is not *natural_O*.

(36) If *A* is *natural_O*, and *A* entails *B*, then *B* is *natural_O*.

(In fact, (36) follows from the definition of "*natural_O*.")

Just as axioms (3) and (4) implies (5), axioms (35) and (36) imply:

(37) If *A* and *B* are *natural_O*, then *A* & *B* is possible.

Then Oppy claims that the following is very plausible:

(38) The property (*W*) of 'having no world-mate that is a necessarily existent, essentially omnipotent, essentially omni[scient], essentially perfectly good being'⁸ is *natural_O*.

⁸ Oppy 2009b, p. 361 has "essentially omnipotent" twice, but presumably one of them is supposed to be "essentially omniscient."

By (37), W (which is equivalent to $W \ \& \ W$) is possible. But if W is possibly instantiated, then by S5 it is impossible for there to be a necessarily existent, essentially omnipotent, essentially omniscient, essentially perfectly good being. But, the objection goes, Oppy's premises are as plausible as the premises of the Gödelian argument for theism, while the conclusions drawn from the premises are incompatible. Thus the premises of the Gödelian argument for theism cannot be so plausible.

We are not convinced that Oppy's premises are equally plausible. Unlike the notions of positivity or negativity, Oppy's notion of a "natural" property is a complex notion that does not appear to cut at the joints or explicate an intuitive property. For instance, while premises like (3), (4), and (32)–(34) are formalizations of plausible intuitions about what properties are positive, the same does not appear to be the case of the gerrymandered claim (38).

But in any case we are not arguing for theism in this book. Thus the conclusion of the parodic argument that there is no necessarily existent, essentially omnipotent, essentially omniscient, essentially perfectly good being does not refute our use of the Gödelian argument.

However, Oppy's premises can be used to produce a more plausible conflict with our conclusion. In fact, we can greatly weaken Oppy's premises and still get a conflict. We need neither (35) nor (36). Replace (38) with the much weaker claim:

(39) There is a natural_O property.

If there is an essentially supernatural necessary being, then the existence of such a being is a necessary truth by S5. Necessary truths are entailed by all propositions, and so every property will entail the necessary existence of an essentially supernatural being, if there is such a being. But then there won't be any natural_O properties, by definition of " natural_O ." Thus if there is an essentially supernatural necessary being, then (39) is false. Conversely, if (39) is true, there is no essentially supernatural necessary being.

This result poses a problem for our argument because it may seem that a necessary being would also be essentially supernatural. After all, it is plausible that no physical entity can exist necessarily, and any non-physical concrete being would be supernatural. If this is right, then our

thesis that there is a necessary being conflicts with the conclusion from the simplified parody argument.

Still, the point that a necessary being would have to be essentially supernatural is not entirely undisputed. A traditional atheistic response to cosmological arguments going back at least to Hume (1779, Part IX) has been that the universe exists necessarily. But the universe could cause effects—say, internal ones, or perhaps spawning another universe—and hence would be concrete. If the universe’s necessary existence is one way for our thesis that there is a necessary being to be true, then there need be no conflict between the conclusion of our Gödelian argument for a necessary being, and the sharpening of Oppy’s parody.

But suppose we grant that every necessary being is essentially supernatural. To evaluate the intuitiveness of a claim involving a purely *stipulated* notion, like naturalness_O , one should replace the term by its definition (just as we offered explications of our notions of “positivity” and “negativity”). Then (39) becomes:

- (40) There is a property that does not entail that there is anything supernatural.

But anyone who holds that necessarily there is something supernatural, and who understands entailment in the way Oppy and we do, will hold that every property entails that there is something supernatural and hence deny (40). In fact, it is easy to see that (40) is equivalent to realism about properties plus:

- (41) Possibly there is nothing supernatural.

Thus, the improved version of the Oppy argument, rather than being parallel to our Gödelian argument, is parallel to the standard S5 ontological argument for theism considered in Chapter 2, and shares in the weaknesses thereof, such as appearing to beg the question.

8.9 Concluding Assessment

Our Gödelian argument shows that plausible theses about the logic of positivity together with the claims that necessary existence and causing a good are positive imply that there is a necessary being.

There are, however, concerns that the argument is vulnerable owing to the ease with which it can be extended to show more. In particular, it is not implausible that the argument can be extended to argue for theism, which makes it vulnerable to the problem of evil. Even more plausibly, it can be extended to argue for a necessary supernatural being, which makes it vulnerable to Oppy's parody. Nonetheless, we argue that Oppy's parody is less plausible than our argument because it relies on a purely stipulative notion of naturalness.

9

Arguments against a Necessary Being

9.1 Introduction

In this final chapter, we will consider whether there may be good reasons to think there is no necessary being. We will assess six arguments. We regard these arguments to be among the best and most important objections to the existence of a necessary being. We shall unpack the basic reasoning behind each one and then explain why we, at least, do not find the arguments convincing.¹

9.2 The Argument from Conceivability

In Chapter 3, we considered Hume's conceivability-based objection to a necessary being. Here again is the gist of that argument. Whatever we can conceive as existent, we can also conceive as non-existent (Hume 1779, pp. 58–9). A truly necessary being would be a being that cannot be conceived as non-existent. Therefore, no being we can conceive of is a necessary being.

Previously, we suggested that conceivability is a two-edged sword. For suppose conceivability implies possibility, as Hume's argument suggests. Then since we can conceive of a necessary being (i.e., a being that instantiates the conjunction of necessary existence and causal capability), it follows that a necessary being is possible. Next, it follows from the modal system defended in Chapter 2 that there actually *is* a necessary being. So the objection cuts against itself.

¹ Our assessments of the first two arguments are adapted from Rasmussen 2016.

But let us slow down our response. Hume suggests that whatever we can conceive as existent, we can also conceive as non-existent. But he doesn't really need to assume that it is possible to conceive of a necessary being. He only needs the conditional: if we can conceive of a necessary being, we can conceive of its nonexistence. Maybe a necessary being is actually inconceivable. We might put his argument in a better light, then, this way. Each existent entity is such that we can conceive of that entity not existing. Conceivability entails possibility. So no existent entity is a necessary being.

We think we can capture the spirit of this argument by focusing on the conceivability of an empty world, rather than on the absence of specific individuals. This way we can completely avoid the issue of whether we can conceive of the absence of X without also conceiving of X. Also, for those who think that it is impossible to coherently conceive of a world that is empty of abstract entities, such as numbers or worlds themselves, we do even better by focusing on *concrete*—causally-capable—things. The argument then says we can conceive of a world without any concrete things. So, it seems to us that we can put the conceivability-based argument in its best light as follows:

- (1) A world empty of concrete things is conceivable.
- (2) If a world empty of concrete things is conceivable, then such a world is possible.
- (3) Therefore, a world empty of concrete things is possible.
- (4) If a world empty of concrete things is possible, then there is no necessary concrete thing.
- (5) Therefore, there is no necessary concrete thing.

There are reasons to find each premise plausible. You might think the first premise is plausible on reflection: just imagine a world containing nothing but empty space. Such a world has nothing concrete in it (assuming the empty space is not itself concrete). If you can imagine such a world, then by doing so you verify that it is conceivable.

What about the two-edged sword problem? Can we equally imagine a world with a necessary being? Here is a reason to think not. In order to imagine a necessary being, we must imagine some thing *as necessary*. How might we do that? It seems the only way to imagine a necessary being would be to somehow imagine one and the same being existing

in all possible worlds. But such imagination stretches our minds beyond our psychological limits. No one can imagine every possible world. To imagine all worlds would require an infinitely complex imagination. No finite being's imagination is that elaborate. Nor could it be. So although we can perhaps imagine an empty world, we cannot imagine a being existing in all worlds.

The second premise—that conceivability implies possibility—can be justified by David Chalmers' conceivability tests.² Chalmers carefully distinguishes several different notions of conceivability and proposes how they might guide us into reliable judgments about metaphysical possibilities. Conceivability is especially helpful, he argues, when it is positive and ideal. One *positively* conceives of a situation *S* when one coherently imagines a situation in which *S* obtains. Chalmers understands imagination as broader than visual imaging (as in a vivid dream), since an imagination can include a conceptual or intuitive representation, such as when one brings to mind the details of a logic or mathematics proof. So, for example, you might "positively" conceive of the absence of a blue ball on your desk, where this conception of an absence goes beyond merely forming a visual image. Conceivability is *ideal* if no amount of further scrutinizing would or could reveal incoherence in what one is imagining. So, for example, if a perfect cognizer is able to (positively) conceive the situation in question, then the situation is ideally (positively) conceivable. But, even without ideal conceivability, one can enjoy *prima facie* (upon initial inspection) or *secunda facie* (upon further inspection) conceivability. These notions provide varying degrees of justification for modal judgments, where the more we inspect, the more justification our modal judgments may enjoy.

Now to be clear, Chalmers does not think that conceivability entails possibility. For example, it is ideally and positively conceivable that water is H_3O . But it's not possible. Nevertheless, propositions that are conceivable in any of the ways given are ones which we have some reason to think are possibly true. Also, on Chalmers' view conceivability entails possibility when we are dealing with a proposition expressible in super-rigid terms (for definition see Chalmers 2012, p. 239).

² See Chalmers 2002, pp. 145–200.

We may apply Chalmers' modal epistemology to our modal judgments about the empty world. It seems we can positively conceive of an empty world. Furthermore, this conception is anywhere between *prima facie* and ideal conceivability. So if Chalmers' test is a good one, it seems we have good reason to think that an empty world is metaphysically possible.

The next premise is (4): if a world without concrete things is possible, then there is no necessary concrete thing. This premise is entailed via S5 by the definition of *necessary concrete thing*: such a thing exists and is concrete in all possible worlds if it exists in any.

The conclusion follows: there is no necessary concrete thing.

Assessment: So what might one say in reply? We say this: conceivability remains a two-edged sword. Consider, first, what it takes to conceive of an empty world. We suggested that we could do this by imagining a world that has no concrete things. This imagination goes beyond mere visualization, though: we imagined that there are no concrete things, but no mental image contains what does not exist. A mental image of blank "space," for example, is not a picture of nothing: such an image doesn't preclude the existence of things outside the imagined region; nor does it preclude 'invisible' or 'non-spatial' things within it. To imagine a completely empty world, one must bring to mind the very abstract and general idea that there are no (concrete) things of any kind, visible or invisible, spatial or non-spatial. Such imagination may count as "positive" in Chalmers' sense, but the imagination involved is deeply conceptual. After all, if we imagine a room with a vacuum and a room with clear air, the mental image will be exactly the same in both cases—except that the roomful of vacuum will come along with the conceptual label 'vacuum here.'³

Once we allow conceptual imagination, one wonders why we cannot conceptually imagine that there is a necessary being. For instance, imagine that there is a black particle that never comes into being or goes out of being. Then imagine that the reason the particle persists is that it cannot fail to exist. If we can do that, then we can imagine that there is something necessary.

Notice here that we don't have to get into our minds all possible worlds in order to imagine that something cannot not exist, just as we don't have

³ Pruss (2012c, sec. 2.3.1) further develops this point.

to get into our minds all possible concrete things in order to imagine that no concrete things are real. So, the question remains: if we can imagine that there is nothing, why can't we equally well imagine that there is something necessary?

Someone might answer that the proposition that something is necessary is *modal* in nature, since it says that something is necessary, whereas the proposition that there is nothing is not. The thought here is that conceiving of modal situations may be a less reliable guide to possibility than conceiving of non-modal situations.

This answer is also two-edged. For there are conceivable non-modal situations whose possibility implies that there is a necessary being. We'll give one example. Consider a situation in which there are some concrete things, such that for any of them, there is an explanation of the fact that those things exist. Call this situation '*E*'. Then *E* is non-modal: it includes no claim about what must or could be.⁴

Furthermore, there is no reason to think it is more difficult for one to conceive of *E* than to conceive of there being no concrete things. In both cases, one entertains a general situation, either about universal non-existence or about universal explanation. By hypothesis, then, we have evidence for the possibility of *E*. But now we can mark out a pathway from *E* to the existence of a necessary being by the argument we gave in Chapter 3: specifically, we showed that there cannot be a non-circular explanation of the existence of the contingent concrete things unless there is a necessary being. Here is a reformulation in terms of *E*:

- (6) Suppose there is no necessary concrete thing.
- (7) Then there cannot be a necessary concrete thing.
- (8) If there cannot be a necessary concrete thing, then there cannot be an explanation of the existence of all contingent (i.e. non-necessary) concrete things.⁵

⁴ If we say '*x* is concrete' is modal on account of the fact that we are taking concrete things to be things that *can* be a cause, then we'll have to say that 'there are no concrete things' is also modal. So parity remains. Besides, we can alternatively work with the simpler principle that there are things, such that for any of them, there is an explanation of their existence.

⁵ In terms of possible worlds: if no possible world contains a necessary concrete thing, then for every possible world containing contingent concrete things, there is no explanation of the existence of all the contingent concrete things in that world.

(9) But, there can be an explanation of the existence of all contingent concrete things (because *E* is possible).⁶

(10) Therefore, the starting assumption is false: there is a necessary concrete thing.

Each step in the deduction follows from normal definitions. Claim (7) follows from (6), given the modal system in play, which implicitly characterizes “metaphysical necessity.” Claim (8) follows from an ordinary meaning of “explanation” on which an explanation of the existence of some contingent things can’t be solely in terms of one or more of those very same things.⁷ To be sure, if the things are not contingent, then there may be an explanation in terms of the impossibility of their non-existence. But that option isn’t available for contingent things.

The final premise, (9), is justified by the very conceivability test that gives life to Hume’s argument. The result, then, is that the very conceivability test that we used to garner evidence for the possibility of an empty world gives us evidence for the critical premise in an argument against the possibility of an empty world. So the evidence is awash.

It is far from clear how a defender of a conceivability-based argument against a necessary being may avoid this parity problem. Three tasks are required: (i) explain what it means to conceive of there being no concrete things; (ii) explain why we should think that conceiving, in this way, is a reliable guide to metaphysical possibility; and, perhaps most importantly, (iii) block “parity” arguments that purport to show that there are conceivable situations whose very possibility is incompatible with the possibility of an empty world. We won’t claim that these tasks cannot be accomplished. But unless they are, the Argument from Conceivability ends in stalemate.

Seeing this stalemate is not a trivial matter. We teased it out with the help of post-Humean developments in modal reasoning.

⁶ In terms of possible worlds: there is a possible world containing contingent concrete things, where there is an explanation of the existence of all the contingent concrete things in that world.

⁷ Maybe you think there could be a purely circular explanation of contingent things, or you think the fact that there are some particular contingent things could somehow be explained by the unlikelihood of their non-existence. We can avoid these cases, however, by simply running the argument on a more explicitly filled-out notion of “explanation,” such as “non-circular explanation” or “non-probabilistic explanation.” This filled-out principle is still conceivable and non-modal.

On a final note, it might turn out that a necessary being has a nature, such that if one were to fully conceive it, one could not conceive of it as non-existent. Nothing we do conceive rules that option out.

9.3 The Semantic Problem

Richard Swinburne (2012) develops a semantic defense of the Humean principle that whatever can exist can fail to exist. We will analyze his argument here.

Swinburne's argument starts with the following semantic assumption:

- (11) Sentence Meaning: The meaning of a sentence includes the conditions of its truth and falsity.

Swinburne motivates Sentence Meaning from observations about our language use. He notices, for example, that as people learn the meanings of words and their sentential combinations, they do so by considering the conditions on which those words and sentential combinations apply to reality. Take a simple illustration. My two-year old says, "There is a kitty." I reply, "No, that is a squirrel." My reply reveals a condition of falsehood, and the effect is that my child gains a more accurate understanding of the meaning of 'There is a kitty.' In general, the more conditions of truth and falsehood we learn about a sentence, the better we grasp its meaning.

We should note that Sentence Meaning doesn't by itself imply that the meaning of a sentence consists *solely* of its truth conditions. It is compatible with Sentence Meaning that a pair of sentences differ semantically but have the same truth-conditions. For example, there may be sentences that express distinct *necessary* truths. That is left open.

The next step in Swinburne's argument is to connect Sentence Meaning with a criterion for necessary truths. A necessary truth, he argues, is such that its sentential negation is self-contradictory. To say that a sentence is self-contradictory is to say this: anyone who fully grasps its meaning can see a priori that it entails a contradiction. So we may state his criterion for necessary truths as follows:

- (12) Necessary Truth: p is a necessary truth if and only if there is a sentence s that expresses the negation of p , where anyone who fully grasps s can see a priori that s entails $\sim s$.

The trip from Sentence Meaning to Necessary Truth is a walk in the park. Let p be any necessary truth. There are no conditions on which p is false. So by Sentence Meaning, the meaning of a sentence s that expresses p includes no conditions on which p is false. So anyone who fully grasps s 's meaning can see that s cannot be true: for they can see that " s is true" contradicts the consequent of all possible truth-conditions built into the meaning of s . The result, in short, is that necessary truths can be seen to be necessary a priori.

What about so-called a posteriori necessities, such as 'Hesperus is Phosphorus' or 'water is H_2O '? Swinburne has an answer. What we discover a posteriori, he suggests, is the meaning of the sentence in question. Take 'Hesperus is Phosphorus' as an example. The terms 'Hesperus' and 'Phosphorus' are what Swinburne calls "uninformative designators." Those terms designate an object, but they do not by themselves supply us with enough information about the designated object for us to see that they actually designate the same object. Through empirical observations, we learned that "Hesperus is Phosphorus" is actually a statement of identity, which like all statements of identity is necessarily true. Again, the very meaning of the sentence includes its truth conditions. So by discovering what those conditions are we discover the meaning of the sentence. From all of this it follows that a posteriori necessities are not counterexamples to Necessary Truth.

The final step is to show that "There is a necessary being" is not a necessary truth. Swinburne justifies this step with the following reasoning. Suppose there is a necessary being. Then "There is no necessary being" is self-contradictory, according to Necessary Truth. Therefore, "There is no necessary being" entails a priori "There is a necessary being." But surely the mere non-existence of something cannot entail a priori the existence of something. So: the initial assumption that there is a necessary being is false. There is no necessary being.

Assessment: In our judgment, the final step of Swinburne's argument is highly problematic. We realize that the first step—which involves justifying Sentence Meaning—may raise red flags for some. But we may treat Sentence Meaning as expressing a stipulation on what Swinburne *means* by "meaning." Swinburne (2012, p. 345) himself identifies meanings with truth-conditions. So Sentence Meaning is really true by definition: by seeing what he means by "meaning," we see that the negation of Sentence Meaning entails a self-contradiction. The next step also seems to follow

from the meaning of terms: if Sentence Meaning is true, then sentences that express necessary truths include *in their meaning* the fact that they are true on all possible conditions.

The third step is vulnerable to a parity problem. For consider the following parity argument for the existence of a necessary being. Suppose there is no necessary being. Then "A necessary being exists" is self-contradictory, according to Necessary Truth. Therefore, "A necessary being exists" entails "There is no necessary being." But surely the mere existence of something cannot entail the non-existence of something. So: the initial assumption that there is no necessary being is false. There is a necessary being.

This argument is exactly parallel to Swinburne's argument. Both arguments appeal to Necessary Truth in the same way. The weakest link in each argument is the premise about entailment. The parallel argument has it that existence doesn't entail non-existence, while Swinburne's argument has it that non-existence doesn't entail existence. It isn't clear that either premise is more plausible than the other.⁸ So the arguments are awash.

Note further that nothing in the Swinburne argument hangs on the necessary being's concreteness. Swinburne is more generally committed to the impossibility of any necessarily existing entity. Thus anyone who wishes to defend the semantic objection faces the following dilemma: either (i) the sentence "Necessarily, there is an x such that $x = a$ " is self-contradictory, or (ii) it is not. Both options are problematic, however.

Suppose, first, that (ii) is true. Then by Necessary Truth, it is actually *possible* that it is necessary that there is something—that there is an x , such that $x = x$. But that implies that it is *necessary* that there is something (given S5), which contradicts the conclusion of Swinburne's argument.

So suppose instead that (i) is true. Then, if the semantic objection is sound, it follows that it is part of the *meaning* of "Necessarily, there is an x such that $x = a$ " that there are no conditions on which it is true. But how could that be? It seems false on an ordinary (non-stipulated) sense of the term "meaning." Of course, we are working with Swinburne's meaning

⁸ One could argue that there are exceptions to both principles. For example, the existence of the tallest person entails the non-existence of a person tied for first place by height. Going the other way, if all truths have truthmakers, then the non-existence of a truthmaker for 'There are no Hobbits' entails that there are Hobbits. In any case, it is hardly more plausible that "There is no necessary being" entails a priori "There is a necessary being" than that "There is a necessary being" entails a priori "There is no necessary being."

of “meaning.” But then the problem is that we are left without a non-question-begging way to justify that (i) is true. In fact, the very reasoning Swinburne uses to justify the possibility that there is no necessary being is applicable here. For that reasoning can be reversed to construct a parity argument: just replace “There is a necessary being” with “There is no necessary being” and observe that neither is *prima facie* more likely to be self-contradictory. So at best the semantic objection ends in stalemate.

In reply to all of this, perhaps Swinburne could insist that those of us who grasp the meaning of “necessity” that he has in mind will be able to see *a priori* that it is not necessary that there is something. On this basis, they may infer that “necessarily, there is an x such that $x = a$ ” is indeed self-contradictory (given Sentence Meaning). Furthermore, they may infer that there is no necessary being.

But is there a notion of “necessity” on which one can see *a priori* that nothing is necessary? If there is, it is far from clear that such a notion is relevant to our project. In particular, it is far from clear that the notion of metaphysical necessity characterized by S5 is one in terms of which anyone can see *a priori* that nothing is necessary. Consider that there are S5-based arguments in the literature for the necessary existence of abstracta (such as: Plantinga 2003, Carmichael 2010, Rasmussen 2014b, pp. 87–105, and Merricks 2015, or the arguments we gave Chapter 8). Swinburne (2012, p. 259) acknowledges that his argument is in trouble if there are necessarily existent propositions—for then there are propositions which no human beings have grasped or ever will grasp, and it becomes less plausible that the modal properties of these propositions should be sensitive to what any of us happen to be able to see *a priori*. Yet, Swinburne’s semantic objection includes no response to any of these arguments. If one is to successfully argue *a priori* that there is nothing necessary, it would greatly help to have a diagnosis of where the S5-based arguments for necessary abstracta go wrong. And more importantly, we should be able to show that “Necessarily, there is an x , such that $x = a$ ” is self-contradictory. We don’t see a way to extract these further results from Swinburne’s criterion for necessary truths. So far it hasn’t been done.

9.4 The Logic Argument

This argument is first suggested in Findlay 1948 and may also be another way to read Swinburne’s argument. Start with the classic thought, common in the modern period, that a proposition is necessary if and only if a

contradiction can be proved from its negation in the true logic once one replaces every defined term by its definition. But no contradiction can be proved from $\sim \exists x(x = a)$ in the true logic. Hence the claim that a exists can never be a necessary truth.

There are two crucial steps in this argument against a necessary being. The first is the claim that a proposition is necessary provided that no contradiction can be proved from it once one replaces terms by definitions, perhaps empirically discoverable ones. The second is the claim that no contradiction can be proved from $\sim \exists x(x = a)$ even after terms are replaced by definitions.

Assessment: Both steps in the argument are flawed. The account of modality here is flawed for the reasons already given in Section 2.2 of Chapter 2. Let us rehearse a simple formulation of one of those reasons. Consider that the axioms of arithmetic are surely consistent, and this consistency is surely necessary. But by Gödel's Second Incompleteness Theorem, a mathematical sentence reporting the consistency of the axioms of arithmetic cannot be proved. Hence that sentence is a counterexample to the account of modality.⁹

The claim that no contradiction can be proved from $\sim \exists x(x = a)$ is more plausible, but is far from clear. In classical First Order Logic, $\exists x(x = a)$ is a theorem for any name a , and thus its negation implies a contradiction (sketch of proof: $\forall x(x = x)$ by an axiom for identity; hence $a = a$ by universal instantiation; hence $\exists x(x = a)$ by existential generalization). Famously, Williamson (2001) uses this fact (among others) to argue that all entities are necessary. So presumably Findlay would need to deny that classical First Order Logic is the true logic—we agree with him. But once we have seen that there is a widely accepted logic on which $\exists x(x = a)$ is a theorem for *every* name a , it is far from clear that on the *true logic* it won't be a theorem for *any* name a .

Perhaps, after all, the true logic will have two types of names, say one indicated with Roman letters and another indicated with Greek letters, and $\exists x(x = a)$ will be a theorem while $\exists x(x = \alpha)$ won't be. Or perhaps names themselves will need to be replaced by some sorts of a posteriori definitions, by analogy to how natural kind terms need to be thus replaced on Swinburne-like accounts of necessity. There is reason to

⁹ Swinburne's account of necessity (Swinburne 2012) also allows for the expansion of definitions and the insertion of identity facts for objects and kinds prior to checking for provability. It does not appear that this will help overcome this objection.

think such replacement is needed. After all, it seems to be a necessary truth that Swinburne isn't a photon, but unless we find a way of replacing "Swinburne" by a definition, we will not be able to prove a contradiction from Photon(Swinburne). So perhaps there is a being n such that when we replace " n " by a definition, then in the true logic—whatever that might turn out to be—it will be a theorem that $\exists x(x = n)$.

There is, finally, a way of using the Gödelian argument to turn the "logical argument" against the account of modality at its heart. Let M be the claim that a contradiction cannot be proved from $\sim \exists x(x = a)$. Then, assuming the logical argument is sound, M is either a contingent or a necessary truth. If it is merely a contingent truth, then something is lacking in the logical argument—for the argument purported to rely only on necessary truths about the nature of modality and logic. So M will be a necessary truth. Hence it will be possible to prove a contradiction from its denial. In other words, it will be possible to prove M . But if we can prove M , then we can prove that the true logic is consistent. For if the true logic is inconsistent, then a contradiction can be proved from every claim, including from $\sim \exists x(x = a)$. But if we can prove the true logic to be consistent, then assuming that the true logic is recursively axiomatizable, and given the plausible claim that the axioms of arithmetic are necessary (and hence follow from the axioms of the true logic, given this account of modality), a violation of Gödel's Second Incompleteness Theorem follows. For that theorem said that no recursively axiomatizable system containing arithmetic could prove its own consistency, assuming it was consistent (and the true logic surely is).

The Gödelian arguments might be questioned by saying that the true logic is not recursively axiomatizable. Perhaps it has an infinite number of axioms which do not reduce to a finite recursive specification. However, if that is true, then the second part of the logical argument becomes less clear. For if there are irreducibly infinitely many axioms, then for all any finite being could know, there might well be an n , such that $\exists x(x = n)$ is among the irreducible axioms.

9.5 The Subtraction Argument

The Subtraction Argument is designed to show that concrete things could be subtracted, one by one, until there are none. We may state a version of the argument as follows:

- (13) Finite: Possibly, there is a finite number of concrete things.
- (14) Subtraction: For any non-zero finite number of concrete things there might be in total, if there could be that number of concrete things, then there could be fewer.
- (15) Leap: If Finite and Subtraction are true, then there is no necessary being.
- (16) Therefore, there is no necessary being.

There is a way to find each premise plausible. Start with Finite, which says that there could be a finite number of concrete things. We see two ways one might support this premise. First, there is the argument from conceivability. It may seem we can coherently conceive of a finite number of concrete things: imagine, for example, two blue spheres with nothing else.¹⁰ If conceivability is evidence of possibility, then it may seem we have evidence that there could have been a finite number of concrete things. Second, there are the “paradox-based” arguments against the possibility of an infinite number of concrete things. These arguments attempt to show that if there were an infinite number of concrete things, then certain absurd—apparently impossible—situations would be possible.¹¹ So there are routes to Finite.

The second premise—Subtraction—falls out of a principle of modal uniformity we appealed to in previous chapters. The basic thought is that any finite lower bound on the number of possible concrete things would be completely arbitrary. To help us appreciate this point, suppose there are exactly four blue spheres. This number of spheres is not a necessary number. After all, someone could create five blue spheres, perhaps out of playdough. But if it isn’t necessary that there are four blue spheres, then it equally isn’t necessary that there are three blue spheres. By this same reasoning, it seems there is no finite number such that it is necessary

¹⁰ There is one tricky issue here. When we count objects for the subtraction argument, one counts objects at all times. But one might think that (i) a concrete thing must persist for a positive duration of time, (ii) there must be infinitely many subintervals of time over any positive duration of time, and (iii) a persisting object has a different temporal part at every subinterval it exists at. If one holds to this combination of views, one will deny the possibility of there being a non-zero finite number of concrete things. This combination of views is, however, rather complex and costly. Note, for instance, that most theorists who believe in temporal parts also think there are instantaneous temporal parts, contrary to (i).

¹¹ See, for example, Craig and Sinclair 2009, pp. 106–16.

that there are exactly that number of blue spheres. Moreover, it seems there is no number, such that it is necessary that there are at least that number of blue spheres. There could be any number of blue spheres, including two or one or none. If we suppose instead that three is the least number of blue spheres there could be, then the lower limit on blue spheres is intolerably arbitrary. In this case, modal uniformity is broken without any justification. Similarly, if there is some finite number of concrete objects, such that there could be no fewer, then the lower limit on concrete objects is intolerably arbitrary. Again, modal uniformity is broken without justification.¹²

One may also motivate Subtraction by inductive reasoning. We observe that for any type of concrete thing, instances of that type can be removed from reality, as long as at least one exists. For example, there can be fewer cars, fewer trees, fewer planets, fewer Helium atoms, fewer solar systems, and so on. Subtraction predicts these observations, and it is far from clear that there is a competing, more virtuous principle (in terms of simplicity, predictive power, etc.) that predicts these same observations. So, one might infer that Subtraction is a plausible generalization from many cases.

Turn, next, to Leap, which connects the previous two premises with the conclusion that there is no necessary being. Leap is easy to demonstrate by reductio. Suppose Finite is true. Let n be the smallest non-negative number with the property that there could be exactly n concrete things. For a reductio suppose $n \neq 0$. Applying Subtraction then shows that there could be $n - 1$ concrete things, which contradicts the claim that n was the smallest number of concrete things. But if there were a necessary being, then there would necessarily be at least one concrete thing. Therefore, there is no necessary being.

Assessment: As with the previous two arguments against a necessary being, the Subtraction Argument faces a “parity” problem. The problem, basically, is that the same sort of reasoning used to support Subtraction can be used to support a parallel premise in an argument for a necessary being. To see this, consider the following argument:

¹² Note that by restricting Subtraction to non-zero numbers of things, we already broke modal uniformity. But we did so with justification. For the idea of there being fewer than zero things is completely absurd, and therefore, an unrestricted Subtraction would absurdly imply that if there can be zero things, there can be negative one things.

- (17) Finite 2: Possibly, there is an explanation of there being at least n concrete things, for some finite n .
- (18) Subtraction 2: For any finite number n , if there could be an explanation of there being at least n concrete things, then there could be an explanation of there being at least $n - 1$ concrete things, where $n - 1$ is a positive number.
- (19) Leap 2: If Finite 2 and Subtraction 2 are true, then there could not have been no concrete things.
- (20) Therefore, there could not have been no concrete things.

There is a way to find each premise plausible. Start with Finite 2, which says that there could be an explanation of there being at least a certain number of concrete things. So, for example, suppose a factory produces one billion cups. Then the operations of the factory (or facts about those operations) explain why there are at least one billion concrete things.¹³ This much seems uncontroversial.

The second premise—Subtraction 2—falls out of the principle of modal uniformity. The basic thought is that any finite lower bound on how many things could be explained would be completely arbitrary. To help us appreciate this point, suppose there is an explanation of why there are at least four blue spheres. That seems possible: imagine, for example, a factory producing four blue spheres. In this example, we used the number four. But the scenario is no less plausible on any other finite number. If we suppose instead that although there *can* be an explanation of why there are at least four blue spheres, there *cannot* be an explanation of why there are at least three blue spheres, then we have an intolerably arbitrary modal boundary. In this case, modal uniformity is broken without any justification. Similarly, if there is some finite number of concrete objects, such that there could not be an explanation of there being at least that many concrete things, then we have an intolerably arbitrary modal boundary. Again, modal uniformity is broken without justification.

One may also motivate Subtraction 2 using inductive reasoning. We observe that for any number of concrete things of any type, there is an explanation available for why there are at least that number of concrete

¹³ We intend a tenseless reading of “are.” Thus, when we say ‘there are at least one billion cups,’ we mean to quantify over all cups that there have ever been, presently are, or ever will be.

things of that type. For example, there are explanations available for why there are any number of cars, trees, planets, Helium atoms, solar systems, and so on. Subtraction 2 predicts these observations, and it is far from clear that there is a competing, more virtuous principle (in terms of simplicity, predictive power, etc.) that predicts these same observations. So, one might infer that Subtraction 2 is a plausible generalization from many cases.

Turn, next, to Leap 2, which connects the previous two premises with the conclusion that there could not have been no concrete things. Here is the reasoning behind Leap 2. First, it follows from these premises (via mathematical induction) that there could be an explanation of there being at least 1 concrete thing. Second, the only possible explanation of there being at least one concrete thing is that there *couldn't* have been no concrete things. Therefore, there could not have been no concrete things.

Someone may object that there is another way to explain why there is at least one concrete thing. For example, one might think that it is objectively unlikely for there to have been no concrete things, and that this unlikelihood explains why there is at least one concrete thing. So Leap 2 is false.

But this objection doesn't get at the heart of our argument. Maybe there are many ways to explain a given fact. But we may explicitly build into Subtract 2 the notion of explanation that is relevant to our argument. For example, we may replace the term "explanation" with the expanded term "non-probabilistic and non-circular explanation."¹⁴ The motivations for Subtraction 2 (i.e., modal uniformity and induction) are no less strong on this more precise reading. And the parity runs just the same.

From all these premises we get a conclusion that cannot be true if the Subtraction Argument is sound. If the Subtraction Argument is sound, then there could have been no concrete things. But if the parallel argument is sound, then there could not have been no concrete things. So either the Subtraction argument is unsound, or this parallel argument is unsound.

It seems to us that there are no better reasons to think the Subtraction Argument is sound than to think the parallel argument is sound. In any

¹⁴ We may also suppose the explanation doesn't feature the very concrete things whose number is to be explained. This stipulation sidesteps the proposal in Maitzen 2013 that the reason there are concrete things is that there are (say) penguins.

case, anyone who wishes to press the Subtraction Argument against a necessary being faces the challenge of showing that no parallel argument for an opposite conclusion is as good. They face the parity problem.

Moreover, in Chapter 6 we gave a uniformity-based reason in support of the existence of a necessary being. There we argued that there are relevant differences between uniformity-based arguments for a necessary being and reverse, parallel arguments against a necessary being. And, we argued that those differences count in favor of the arguments for a necessary being. Here our assessment is more modest. Rather than attempt to show that there is a superior “reverse” Subtraction Argument against the possibility of there being no concrete things, we suggest merely that the respective arguments are equal in force. So, they are awash.

It is worth noting in closing that there is a version of the Subtraction Argument that may be free from the parity problem. It has as its conclusion that there could be no *spatial* objects, rather than no causally-capable objects.¹⁵ This difference is relevant. In particular, it is unclear how to give a parallel argument that has an opposing conclusion. The opposing conclusion would be this: there could not have been no spatial things. But how do we reach that conclusion? The relevant parallel explanation-based argument only gives us this conclusion: there could be an explanation of there being at least one spatial thing. But now we need an un-parallel argument to rule out the option that God, or some other non-spatial beings, created a spatial universe. Some readers may have no problem ruling out that option, in which case even this Subtraction Argument falls prey to a parity problem. But those who have no independent way of ruling out that option may be moved by this Subtraction Argument, even if there is a necessary being.

9.6 Problems with Causation

Someone might object that a necessary thing cannot cause anything to exist. How might such an objection be justified?

We see two general strategies for justifying the premise that no necessary thing can be a cause. First, one might think that all causation is

¹⁵ Rodriguez-Pereyra (2013) defends this version of the argument, where he defines “concrete” in terms of spatial occupation.

deterministic. If causation is deterministic, and if there is a necessary thing that is the causal foundation of everything else, then everything necessarily exists, assuming everything is causally related to that foundation. But surely not everything necessarily exists. Therefore, there is no necessary thing at the causal foundation. Nor could there be—for the same reason.

But why think causation is deterministic? Our talk of causes in ordinary language doesn't seem to be talk of anything that is deterministic (Anscombe 1971). For example, I say 'smoking is a cause of lung cancer,' but I don't thereby mean that necessarily, if someone smokes, then they will get lung cancer. Furthermore, our arguments for a necessary being can be converted into arguments for contingent causation. We simply go along with the objector in assuming that (i) not everything necessarily exists and that (ii) if there were a necessary being, then everything would be causally related to it. Then it *follows* that causation is not deterministic. We see no non-question-begging reason to think otherwise.

The second strategy for justifying the premise that no necessary thing can be a cause of anything is to show that there is a plausible theory of causation on which there is no necessary being. The problem here, however, is that there doesn't seem to be any such theory. The main body of the literature on causation does not seem to address the question of whether there is a necessary being. Now, granted, there are prominent accounts of causation on which instances of causation must fall under relevant laws of nature,¹⁶ and one proposal for what a necessary being would be is that it would be God. Furthermore, it can be argued that if God exists, it has a kind of causal power that does not fall under laws of nature. But every step in this argument can be questioned. First, causation could be a primitive relation not dependent on laws of nature. Second, a necessary being could be a highly energetic particle. Third, there could be a law of nature such as that whatever God wills¹⁷ happens. In fact, note that if God exists,

¹⁶ E.g., David Lewis grounds causation in counterfactuals, but counterfactuals are defined in terms of the similarity of worlds in a way that depends on the notion of laws of nature (Lewis 1979), and it would be very difficult to get cases of causation without relevant laws.

¹⁷ Theologians may want to specify that this holds of God's "consequent" will but not of God's "antecedent" will (Aquinas 1920 [c.1265], I.19.6).

then the last claim may turn out to be true on the Mill-Ramsey-Lewis view of laws of nature, where such laws are propositions about the world that maximize a balance of informativeness and brevity. For everything that is a part of the content of God's will in fact happens, and there will presumably be a very, very large number of things God wills. In any case, we find no reason to think that a necessary thing, whatever its nature, cannot be a cause on any of the major theories of causation.

9.7 The Costly Addition

Suppose there is a necessary being. Then our ontology is more complex. There are more things than we need, and there are more types of things than we need. Suppose, instead, *contingentism* is true—i.e. all concrete things are contingent. Then we may enjoy a cleaner ontology. In particular there is then greater modal and causal uniformity. The theory that there is a necessary being lacks such uniformity and so has extra costs. When we say that a theory has “costs,” we mean that there are features of the theory which count against its credibility. The costs of a theory are non-decisive reasons to think that the theory is false (or less likely). On this account, the proper way to “pay” a cost—if it must be paid—is to have a countervailing reason in support of the theory in question. Let us have a closer look at each of the potential costs of the theory that there is a necessary being.

9.7.1 *Modal Anomaly*

Contingentism enables a modally uniform reality, since if contingentism is true, then everything, or at least every concrete thing, is contingent. Modal uniformity is desirable because it results in a simpler, cleaner ontology. If instead there are necessary concreta, then there will be a modal anomaly, since not everything will be contingent. This breach in modal uniformity is a cost.

We will argue, however, that everyone who believes there are facts (whatever they might be) has reason to pay this cost (if it is a cost). Here is our argument. Let ‘Existence’ name the fact that there are facts. Now either Existence necessarily obtains, or it does not. Suppose, first, that Existence necessarily obtains. Then Existence necessarily exists, because nothing can obtain without existing. Suppose instead that Existence does

not necessarily obtain. Then the fact that Existence does not necessarily obtain itself necessarily obtains (assuming S5)—and so necessarily exists. Either way, there is something—some fact—that necessarily exists.¹⁸

If this reasoning is sound, then there are necessary things (facts) and some concrete things. But now it is far from clear why there should be any additional “uniformity” problem if those two categories happen to overlap (i.e., have members in common). Compare: if there are red things and square things, it seems we should not be surprised to learn that there are red square things. More generally, if there are *A*-type things and *B*-type things, it seems we should not be surprised to learn that there are *A*-and-*B* things, unless we have an independent reason to think that *A* precludes *B* or renders *B* improbable. So, it seems we should not be surprised to learn that there are necessary concrete things, unless we have an independent reason to think that necessity precludes or renders improbable concreteness.

This consideration is by no means decisive. One might insist that there are in fact no facts (and no necessary abstracta). Or one might accept that there are facts but deny any modal system on which some facts are necessary. Even still, one might wonder whether resisting the argument in these (or other) ways is any less costly than breaking modal uniformity. We suggest that at the very least, we have reason to be highly tentative at this stage about whether there is a modal cost to pay on the theory that necessity overlaps concreteness. Things would be different if we already had in hand a good argument against the existence of necessary concreta. But we don't.

9.7.2 *Causal Anomaly*

Contingentism enables causal uniformity: if contingentism is true, then, possibly, everything, or at least every concrete thing, has a cause of its existence in an infinite causal regress. If, on the other hand, contingentism is false, then causal uniformity is precluded because a necessarily existing foundation of reality presumably cannot itself have a cause. The break in causal uniformity is a cost because the theory that each thing has a cause

¹⁸ This argument parallels the argument for necessary propositions we defended in Chapter 7. Thus the objections and replies to our argument in Chapter 7 could be repeated here. We could alternatively run an argument for any necessary abstracta such as propositions, properties, and mathematical objects in place of Existence.

is simpler and implies a more uniform reality than the theory that some things have no cause.

In reply, consider first that a causal “anomaly” is inevitable. We have already seen an argument for the conclusion that if there are facts, then something is necessary. If that argument goes through, then there must be something uncaused (assuming, for the sake of the objection at hand, that necessary realities must indeed be uncaused). The same goes for necessary abstracta.

But even if there are no facts, there is a more fundamental problem with supposing that everything has a cause. The problem arises when considering the kinds of things that have causes. Take, for example, our solar system. As we observed in Chapter 3, it certainly makes sense to ask what caused the solar system to exist, even if we don’t consider the solar system as a thing over and above its parts. (One might think of a “solar system” as a plurality of things arranged solar-system-wise.) Furthermore, it doesn’t matter how big the solar system is, or how many parts it has. It still makes sense to ask what caused any given solar system to exist. More generally, for any arrangement of things, it makes sense to ask what caused that very arrangement to exist. Yet, an arrangement of all concrete things cannot have the sort of external cause that other arrangements evidently have: an arrangement of all concrete things occupies all of concrete reality, leaving nothing “outside” it that could help to cause its existence. It seems, then, that there is some “totality item”—be it an arrangement, state of affairs, things arranged F-wise, or something else—that cannot be (externally) caused but that falls into the very same category as those realities (or pluralities) that are normally thought to have an external cause. If that is right, then there must be a causal anomaly of some sort.

An advantage of including necessary concreta in our ontology is that we can explain why the totality item has no external cause: the totality item has no external cause because a portion of it exists necessarily and so cannot have a cause. Contingentism, by contrast, leaves us with a mystery: what difference might there be between contingent parts and contingent whole—such as parts of a tree versus the whole tree, parts of a storm versus the whole storm, parts of a cosmos versus the whole cosmos—that would explain why the parts have a cause but not the whole? If anything, it seems that contingentism has a disadvantage with respect to causal anomalies: contingentism, unlike the theory that there is a necessary

causal foundation to reality, fails to account for why portions of reality have causes while an entire arrangement of everything does not.

In conclusion, it may be more costly *not* to have a necessary being. Or to put this result in a positive way: having a necessary being is a great value at a low cost.

9.8 Concluding Assessment

We reviewed six types of objections to the existence of a necessary being. We consider these to be representative of the major objections that have been raised to date. The first four we considered—from conceivability, from meaning, from logic, and from subtraction—have been the most common and serious objections. But three of them face a similar problem: the problem of parity. And the logic-based argument was based on an unacceptable account of modality. We do not claim that no one can rescue any of those arguments. At this stage, the prospects for further inquiry are wide open.

Perhaps the best of the objections is the Costly Addition Argument. That argument, unlike the others, seems to bring to light a potential cost of the theory that there is a necessary being—in particular the cost of having more kinds of concrete things. Still, some costs are worth paying. In particular, one must weigh this cost—if it is a cost—against the total weight of the arguments for the existence of a necessary being. We have developed several arguments for a necessary being, and we offer more in the Appendix. These arguments reveal positive reasons to include a necessary being in one's ontology. Different philosophers will of course weigh the arguments differently. For our part, we think that expanding one's ontology to include a necessary being—at least one—is well worth the price.

Appendix: A Slew of Arguments

A.1 Introduction

In this appendix, we give a number of arguments for our conclusion that there is a necessary being. We make no claim for these arguments other than their validity and a certain minimal degree of plausibility of each premise to at least some philosophers. We certainly do not endorse all the premises. Nonetheless, the arguments in the appendix help make probable the first premise of the following argument:

- (1) The disjunction of the conjunctions of the premises of the other deductive arguments for a necessary being in this book is true.
- (2) All the deductive arguments for a necessary being in this book are valid.
- (3) There is a necessary being. (By (1) and (2))

We also give little to no discussion of the premises beyond what is needed for explaining what is involved. Evaluating the plausibility of the premises is a task for future research, and the reader is invited to join this project.

Note that in some cases (e.g., the argument in A.5.2) where we invoke S5, in fact Brouwer will suffice (Adams 1971).

A.2 There Must be a Concrete Object

Consider this argument:

- (4) Necessarily, there is at least one concrete object.
- (5) Possibly, there are no contingent concrete objects.
- (6) Possibly, there is a concrete object and no contingent concrete objects.
(By (4) and (5))
- (7) Possibly, there is a necessary concrete object. (By (6))
- (8) There is a necessary concrete object. (By (7) and S5)

In Section 7.5 of Chapter 7, arguments for (5) were adduced, and considerations based on abstracta were used to argue for (4). Here we will give several alternate arguments for (4) or for the equivalent claim that it's impossible for there to be no concreta.

But while we are at it, we offer another route from (4) to (8). Mereological universalism holds that for any non-empty set S of objects in a possible world

w , there is an object O at w wholly composed of the members of S , i.e., every part of O overlaps some member of S and every member of S is a part of O . Mereological universalism has been defended on the grounds that without it there are no good non-arbitrary distinctions between those sets of objects that wholly compose a whole and those that don't, and on the grounds that without mereological universalism there is no hope for artifacts like tables and chairs to exist. But both of these arguments support a stronger thesis, namely transworld mereological universalism, which says that every modal mereological profile is exemplified:

- (9) For any map f from possible worlds to sets of objects such that all the objects in the set $f(w)$ exist at w for every w , there is an object O_f such that if $f(w)$ is non-empty, then O_f exists at w and every member of $f(w)$ is a part of O_f at w .

Then we can argue:

- (10) For every possible world w , there is a set, which we call C_w , of all the concrete entities at w .
 (11) Define $f(w) = C_w$. (Definition)
 (12) If O is wholly composed of the members of a non-empty set S of concrete entities, then O is concrete.
 (13) Let O_f be an object satisfying the conditions of (9). (Existence secured by (9))
 (14) The set $f(w)$ is non-empty for each w . (By (4), (10), and (11))
 (15) The object O_f exists at every world and is actually concrete. (By (12)–(14))

A.2.1 *The Causal Theory of Possibility*

The causal theory of possibility defended by Pruss (2011) holds that p is metaphysically possible if and only if p is actual or something has the causal power to initiate a causal chain that can lead to p . We assume that existential quantifiers have an eternalist interpretation. Thus, “There are no F s” means that there never are any F s.

- (16) If it is possible that there are no concrete objects, then there are no concrete objects or something has the causal power to initiate a causal chain that can lead to there never being any concrete objects.
 (17) There are contingent concrete objects.
 (18) Nothing concrete has a causal power to initiate a chain of causes leading to there never existing contingent concrete beings.

- (19) Nothing non-concrete has a causal power.
- (20) The consequent of (16) is false. (By (17)–(19))
- (21) Necessarily, there is at least one concrete object. (By (16) and (20))

A.2.2 *The Causal Theory of Counterfactuals*

Counterfactuals whose consequent differs from their antecedent and whose antecedent is possible are stipulated to be non-trivial.

- (22) Necessarily, all non-trivial counterfactuals are grounded in the causal powers of entities.
- (23) Necessarily, there are non-trivial counterfactuals (e.g., if p were to hold, then p or p would hold).
- (24) If a counterfactual has an impossible conclusion, its antecedent is impossible.
- (25) If there were nothing concrete, there would be no non-trivial counterfactuals. (By (22))
- (26) It is impossible that there is nothing concrete. (By (23)–(25))

A.2.3 *Time, Space, and Laws*

- (27) Necessarily, time (respectively: space, spacetime, laws) depends on concrete objects.
- (28) Necessarily, there is time (respectively: space, spacetime, laws).
- (29) Necessarily, there are concrete objects. (By (27) and (28))

A.2.4 *Knowability and Reasonable Believability*

- (30) Every possible fundamental truth can be known (respectively: reasonably believed).
- (31) It is impossible that someone knows (respectively: reasonably believes) there are no concrete objects. (Believers are obviously concrete objects!)
- (32) Necessarily, if there are no concrete objects, it is a fundamental truth that there are no concrete objects.
- (33) If it is possible that there are no concrete objects, it is possible that someone knows (respectively: reasonably believes) there are no concrete objects. (By (30) and (32))
- (34) It is impossible that there are no concrete objects. (By (30) and (33))

If ‘fundamental’ was dropped from (30), then we would have a quicker but less plausible argument via Fitch’s argument comprising the infamous Knowability

Paradox (see Kvanvig 2006), which shows that if every truth can be known, then every truth is known.

A.2.5 *Explicability of Fundamental Truths*

Say that a proposition p is possibly explained provided that there is some possible world at which it is the case that p has an explanation. We take explanation to be factive, so if q explains p , then both p and q are true.

(35) Necessarily, at least one contingent fundamental truth is possibly explained. (A weakish version of a necessary Principle of Sufficient Reason)

(36) Necessarily, if there are no concrete objects, the one and only contingent fundamental truth is that there are no concrete objects.

(37) Necessarily, it is impossible for there to be an explanation why there are no concrete objects.

(38) Necessarily, if there are no concrete objects, then that there are no concrete objects is possibly explained and not possibly explained. (By (35)–(37))

(39) It is impossible there are no concrete objects. (By (35)–(38))

If we strengthen (35) to say that necessarily every fundamental truth is possibly explained (a weaker version of the WPSR in Gale and Pruss 1999), then we can replace (36) with the weaker (32). Basically, (36) tells us that there is at most one way for reality to be without concreta.

A.3 From Almost Necessity to Necessity

Say that an entity is *almost necessary* provided that it exists in all possible worlds that have concrete objects, and an *almost necessary being* is an almost necessary entity that is a possible cause. (Every necessary being is almost necessary.) But by considerations of rearrangements it is plausible that:

(40) If an entity e isn't necessary, then there is a possible concrete entity with which it can fail to coexist.

Then we can argue:

(41) There is an almost necessary being.

(42) There is a necessary being. (By (40) and (41))

We can now generate a family of arguments for a necessary being by arguing for an almost necessary being.

A.3.1 Ontological Argument: Direct S5

- (43) Possibly an almost necessary being exists.
- (44) There is a concrete entity.
- (45) An almost necessary being exists. (By S5, (43), and (44))

We leave to the reader the details of the last inference.

A.3.2 Love and Mysticism

- (46) It (broadly) perceptually seems to some mystic that an instance of love is the ground of all being.
- (47) Necessarily, anything that is the ground of all being exists almost necessarily.
- (48) There are no perceptions of what is impossible.
- (49) Necessarily, it is an essential property of an instance of love that it is an instance of love.
- (50) If an instance of love exists almost necessarily, then a lover exists almost necessarily.
- (51) Necessarily, a lover is concrete.
- (52) Possibly, an instance of love is the ground of all being and exists almost necessarily. (By (46)–(48))
- (53) An instance of love exists almost necessarily. (By S5, (49), (50), and (52))
- (54) There is an almost necessary being. (By (50), (51), and (53))

A.3.3 Ontological Argument: Comparative Greatness

- (55) Possibly, a being at least as great in every respect as every possible concrete being exists.
- (56) Necessarily, if x is at least as great as y in every respect and y is concrete (i.e. has causal power), then x is concrete. (Concreteness is a perfection)
- (57) If w is a possible world, and y exists at w while x does not exist at w , then x is not at least as great as y in every respect. (Existence is a perfection)
- (58) Necessarily, a being at least as great in every respect as every possible concrete being is an almost necessary being.
- (59) There is a concrete entity.
- (60) Possibly, there is an almost necessary being. (By (55)–(58))
- (61) An almost necessary being exists. (By S5, (59), and (60))

A.3.4 Transworld Mereological Universalism

- (62) Transworld mereological universalism is true.
- (63) For every possible world w , there is a set of all the concrete entities at w .
- (64) There is an almost necessary being. (Namely O_f ; see (10)–(15))

However, acceptance of this argument may undercut the rearrangement intuitions behind (40).

A.4 Particular Kinds of Concrete Necessary Objects

A family of arguments can be given that not only conclude to a concrete necessary object, but also attempt to identify one or more such objects.

A.4.1 God

- (65) If God exists, God is a necessary being.
- (66) God exists. (Insert favorite theistic argument here)
- (67) There is a necessary being. (By (65) and (66))

A.4.2 Spacetime

- (68) Spacetime exists necessarily.
- (69) Spacetime causally influences the objects moving within it. (Interpretation of General Relativity)
- (70) There is a necessary being. (By (68) and (69))

A.4.3 Abstracta

- (71) If an ontological category of objects (respectively: properties, propositions) consists solely of causally inert objects, we do not know any members of that category to exist.
- (72) We know some mathematical objects (respectively: properties, propositions) to exist.
- (73) Mathematical objects (respectively: properties, propositions) are an ontological category.
- (74) All mathematical objects (respectively: properties, propositions) that exist do so necessarily.
- (75) If all mathematical objects (respectively: properties, propositions) are causally inert, we do not know any of them to exist. (By (71) and (73))

(76) Some mathematical objects (respectively: properties, propositions) are not causally inert. (By (72) and (75))

(77) Some mathematical object (respectively: property, proposition) exists necessarily without being causally inert. (By (74) and (76))

(78) There is a necessary being. (By (77))

Premise (71) is a stronger version of an assumption on knowability from Chapter 7.

A.4.4 *Universe*

(79) The physical universe exists necessarily.

(80) The physical universe exerts causal influences on itself.

(81) There is a necessary being. (By (79) and (80))

A.4.5 *Necessitism*

Versions of the following argument have been famously defended by Williamson (2013).

(82) Every theorem of classical logic is a necessary truth.

(83) It's a theorem of classical logic that Williamson exists.

(84) Williamson is causally efficacious.

(85) There is a necessary being (viz., Williamson). (By (82)–(84))

Claim (83) is established by noting that it's a theorem of classical logic that:

(86) $\forall x \exists y (x = y)$

(this follows from the fact that $\forall x (x = x)$), and then, by universal instantiation, we get the theorem:

(87) $\exists y (\text{williams} = y)$.

Of course, the official logic of the present book is not classical logic but a free logic.

A.4.6 *Lacks*

(88) If there cannot be any *Fs*, the lack of *Fs* exists necessarily.

(89) Possibly, there are square-circle detectors that are caused not to fire by the lack of square circles.

(90) Necessarily, there are no square circles.

- (91) The lack of square circles exists necessarily. (By (88) and (90))
- (92) The lack of square circles is concrete. (By (89))
- (93) There is a necessary being. (By (91) and (92))

A.5 Causation

A.5.1 *Argument from Contingency*

- (94) Possibly, the premises of the Argument from Contingency (Chapter 3) are all true.
- (95) Possibly, there is a necessary being. (By (94) and as the Argument from Contingency is valid)
- (96) There is a necessary being. (By S5 and (95))

A.5.2 *Possible Contingency Finitism*

- (97) Necessarily, every contingent entity has a cause.
- (98) Possibly, there are only finitely many contingent entities.
- (99) Necessarily, there are no causal loops.
- (100) Necessarily, if every contingent object has a contingent cause and there are only finitely many contingent entities, then there is a causal loop.
- (101) Necessarily, if there are only finitely many contingent entities, then some contingent entity either has no cause or has a necessary cause. (By (99) and (100))
- (102) Necessarily, if there are only finitely many contingent entities, then some contingent entity either has no cause or has a necessary entity as a cause. (By (101))
- (103) Possibly, a necessary entity is a cause. (By (97), (98), and (102))
- (104) There is a necessary being. (By (103) and S5)

A.5.3 *Possible All-inclusivity*

- (105) Necessarily, every contingent entity has a cause.
- (106) Possibly, there is a contingent entity that has all other contingent entities as proper parts.
- (107) It is impossible for a contingent entity to be caused by itself or by a proper part.

(108) Possibly there is a contingent entity that is caused by a necessary entity.
(By (105)–(107))

(109) There is a necessary being. (By (108) and S5)

Premise (106) follows from mereological universalism, but it doesn't require it: it will also be true in worlds where there is a single organic whole that subsumes all contingent entities, even if that organic whole is gunky and has infinitely many parts.

A.5.4 Boltzmann Brains

Say that an "ordinary knower" is a being whose mental life is like ours and who has many ordinary beliefs that are knowledge.

(110) There is a set S of ordinary knowers.

(111) Let $N = 2^{|S|}$, where $|S|$ is the cardinality (finite or infinite) of S .

(112) If there are N causally isolated universes each containing a Boltzmann brain with a mental life like yours, then you are Gettiered with respect to all but at most a few ordinary beliefs.

(113) If it is a mere accident that there are not N causally isolated universes each containing a Boltzmann brain with a mental life like yours, then you are Gettiered with respect to all but at most a few ordinary beliefs.

(114) Unexplained facts are mere accidents.

(115) It is not the case that you are Gettiered with respect to all but at most a few ordinary beliefs. (Skepticism is false!)

(116) If there is no necessarily existing first cause, there is no explanation why it is not the case that there are N causally isolated universes each containing a Boltzmann brain with a mental life like yours.

(117) There is a necessarily existing first cause. (By (110)–(116))

A.5.5 Spacetime Again

(118) Necessarily, no contingent entity causes a spacetime.

(119) Possibly, some spacetime has a cause.

(120) Possibly, there is a necessary entity that causes a spacetime. (By (118) and (119))

(121) There is a necessary being. (By (120) and S5)

One line of thought favoring (118) would be that contingent entities other than spacetimes themselves must be spatiotemporal, and that a spacetime or a

spatiotemporal entity cannot cause a spacetime. However, speculative physics on which a spacetime arises from another is incompatible with (118).

A.6 Human Life

A.6.1 *Mathematics and Mattering*

- (122) Only facts grounded in causally efficacious entities should matter much to us.
- (123) Some mathematical facts should matter much to us.
- (124) Mathematical facts are not grounded in any contingent entities.
- (125) Mathematical facts are grounded in a necessarily existing causally efficacious entity. (By (122)–(124))

Claim (122) attempts to capture a grain of truth in the commonsense idea that we should focus on concrete reality. One argument for (123) is that mathematics is very much worth doing for its own sake.

A.6.2 *Seeking Understanding*

- (126) It is healthy to desire to understand why there is something contingent.
- (127) A desire for an impossible state is unhealthy.
- (128) One can only understand why *p* if one (factively) grasps an explanation why *p*.
- (129) Necessarily, if there is an explanation why there is something contingent, there is a necessary being.
- (130) It's possible to understand why there is something contingent. (By (126) and (127))
- (131) Possibly there is an explanation why there is something contingent. (By (128) and (130))
- (132) Possibly there is a necessary being. (By (129) and (131))
- (133) There is a necessary being. (By S5 and (132))

This argument is related to Aquinas' idea (Aquinas 1920 [c.1270] I-II.3.8) that our intellectual *telos* is to know the first cause. Surely our *telos* couldn't be impossible to attain.

A.6.3 *Happiness*

- (134) Humans can only be (fully) fulfilled in communion with a perfect being.
- (135) Necessarily, a perfect being is a necessary being.

- (136) It is possible for humans to be (fully) fulfilled.
- (137) It is possible for there to be a necessary being. (By (134)–(136))
- (138) There is a necessary being. (By S5 and (137))

A.6.4 *Security of Relationship*

This argument is inspired by Buras and Cantrell Unpublished.

- (139) Humans can only be fulfilled in a relationship with a concrete being who cannot cease to exist.
- (140) Necessarily, every contingent concrete entity can cease to exist.
- (141) Humans can be fulfilled.
- (142) It is possible for there to be a necessary being. (By (139)–(141))
- (143) There is a necessary being. (By S5 and (142))

A.6.5 *Attempted Murder*

Say that an action is *fundamentally other-wronging*, provided that the reason it is wrong is that it is a failure in one's duties to another person.

- (144) Necessarily, attempted murder is fundamentally other-wronging.
- (145) Possibly, someone who is the only contingent person in existence commits attempted murder, mistakenly thinking there is another contingent person.
- (146) Possibly, there is someone who is the only contingent person and yet who wrongs another person. (By (144) and (145))
- (147) Necessarily, every person is concrete.
- (148) Possibly, there is a necessary person. (By (146))
- (149) Possibly, there is a necessary being. (By (147) and (148))
- (150) There is a necessary being. (By S5 and (149))

A.7 *Miscellaneous*

A.7.1 *A Root for the System of Chances*

- (151) If there are no necessarily existing first causes with essential causal dispositions, there are no unconditioned chances for contingent events.
- (152) There are unconditioned chances for contingent events.

(153) There is a necessarily existing first cause. (By (151) and (152))

Arguments like those in Pruss (2017) might be used to try to argue that if (152) is false, then skepticism follows.

A.7.2 *The Weak Weak Principle of Sufficient Reason*

The Weak Principle of Sufficient Reason (WPSR) says that for every contingent truth p , possibly p has an explanation. The Weak WPSR (WWPSR) says that the WPSR is possibly true.

(154) The WWPSR is true.

(155) The WPSR entails that every contingent truth has an explanation.

(156) Necessarily, if every contingent truth has an explanation, there is a necessary being who figures in an ultimate explanation of something.

(157) Possibly, every contingent truth has an explanation. (By (154) and (155))

(158) Possibly, there is a necessary being. (By (156) and (157))

(159) There is a necessary being. (By S5 and (158))

Claim (155) is well-known in the literature (Oppy 2000) and can be quickly shown as follows. If p has no explanation, then the conjunction of p with the claim that p has no explanation not only has no explanation, but cannot have an explanation, contrary to WPSR.

A.7.3 *Explanatory Closure of the Concrete Realm*

(160) Only facts grounded in the existence, non-existence, and/or behavior of concrete entities contribute to the scientific explanation of the behavior of concrete entities.

(161) Mathematical facts contribute to scientific explanations of the behavior of concrete entities.

(162) The grounds of mathematical facts are the same in all possible worlds.

(163) Mathematical facts are not grounded solely in the non-existence of concrete entities.

(164) If among the grounds of mathematical facts are the existence and behavior of concrete entities and the grounds of mathematical facts are the same in all possible worlds, then among the grounds of mathematical facts are the existence and behavior of necessarily existing concrete entities.

- (165) Mathematical facts are grounded in the existence, non-existence, and/or behavior of concrete entities. (By (160) and (161))
- (166) Among the grounds of mathematical facts are the existence and behavior of concrete entities. (By (163) and (165))
- (167) Among the grounds of mathematical facts are the existence and behavior of necessarily existing concrete entities. (By (162), (164), and (166))
- (168) There is at least one necessary being. (By (167))

A.7.4 Our Readers' Cleverness

- (169) At least one of our readers is smart enough to be able to rework one of our arguments into a sound argument for the existence of a necessary being.
- (170) No one can do the impossible.
- (171) Necessarily the conclusion of a sound argument is true.
- (172) It is possible for there to be a sound argument for the existence of a necessary being. (By (169) and (170))
- (173) It is possible that a necessary being exists. (By (171) and (172))
- (174) There is a necessary being. (By S5 and (173))

And now we invite our readers to strive to realize the possibility in (169).¹

¹ In case a reader may be curious about how the authors worked together to produce this book, we point out here that the material of this book occupies an intersection of thoughts that both of us are favorable toward, unless otherwise indicated. We each took primary responsibility for a different set of chapters. Rasmussen had primary responsibility for Chapters 1, 3–6, and 9, while Pruss for 2, 7, 8, and the Appendix. Our hands are well inside each other's work in the form of edits and additions.

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Index

- abstracta 71, 95n2, 126–49, 164, 182,
 - 192, 193, 195, 200
 - fundamental 140–1, 147
 - heavily existing 138
 - lightly existing 138
 - Platonic 141
- ACE, *see* contingency, argument from
- activity 45–6, 50, 52, 53n18, 68, 159
 - causal 45–6, 50, 63
 - contingent 63
 - explanatory priority of existence to 52–3
 - mental 38
- Anscombe, G. E. M. 190
- Anselm of Canterbury, Saint 150, 158
- Aquinas, Saint Thomas 156–9, 190n17, 204
- Aristotelian ontology, *see* ontology, Aristotelian
- Aristotle 112, 140
- artifacts 196
- Augustine of Hippo, Saint 126
- axiology 70
- Big Bang 75, 87, 90
- Big Contingent State 45–6, 53, 67–8
- categories 4, 119, 127n2, 192–3
 - basic 117
 - of being 1n2
 - fundamental 4
 - ontological 141, 200
- causal chains 76–7, 196
 - circular, *see* causation, circular
- causal powers 2, 14, 17, 19, 49, 140, 146–7, 196–7, 199
 - account of modality, *see* modality, causal powers account of
 - contingent 147
 - fundamental 165
- causal principle 64, 69, 80, 92–4, 98–9, 101, 103–9 (*passim*), 119–20
 - modal 101, 111
 - restricted 93–4, 99
 - very weak 98
 - weak 72–5, 78, 80, 86, 90
 - weaker 82
- causation 2, 71, 84, 92, 94–5, 99, 107, 127, 189–91, 202
 - absence 145–6
 - cause, first, *see* First Cause
 - circular 72, 92, 94, 97, 102, 105, 107–8, 119–22, 167
 - contingent 36, 190
 - deterministic 190
 - event 2, 71n4
 - indeterministic 67, 80, 190
 - possible 2, 34n2, 84, 151–2, 166
 - substance 2, 71n4
- Chalmers, David 31, 49, 110–11, 175–6
- chaos 40, 43, 46n14, 54–7, 65, 73
 - argument from 40–3, 56, 63
 - necessary 65
- Christianity 167n5
- classes, *see* sets, classes
- composition
 - of non-spatial things 39
 - restricted 54
- conceivability 47, 56–7, 73, 81–2, 104, 173–9
 - argument from 173–9, 185, 194
 - ideal 175–6
 - of a necessary being 29–31, 56, 173–5
 - positive 175–6
 - and possibility 29, 31, 47–8, 56, 73, 76, 87, 92, 100, 110–11, 173–8, 185
- concreta
 - contingent 34–46 (*passim*), 53, 63, 69–70, 73, 75–9, 85, 87–8, 91, 119, 121–2, 126, 142–4, 146–8, 177–8, 195–6, 205
 - necessary 2–5, 9, 34–5, 39, 45, 47–50, 53, 58, 70, 76, 78–9, 84, 86–8, 90–2, 100–7 (*passim*), 121–4, 126–49 (*passim*), 174, 176–8, 192, 195, 200

- contingency 18, 20–2, 69–81, 119, 133, 202
 - of apparently everything 1–5, 38
 - argument from 33–68
 - beginning of 75, 82–91, 102, 105, 108
 - of caused things 33, 64–5, 193
 - of concreta, *see* concreta, contingent
 - of eternal things 43, 63
 - and explanation 34–53, 62, 69, 177–8
 - fundamental 63–4, 78, 87
 - necessary 142–4
 - sensation of 39, 141
 - of simples, *see* simples, contingent
 - of things lacking a beginning 74
 - of uncaused things 40–5, 56–7, 63, 67–8, 72, 92
- contingentism 191–3
- cosmological argument 33, 57–8, 66, 91–2, 94, 98, 106, 108, 171
 - modal 69, 93, 111
- counterfactuals 23–4, 71, 72n5, 130–1, 190n16, 197
 - counterfactual arrow of time 23
- counterparts 66
- creation ex nihilo 105
- Critical Assumption 61–2
- determinism
 - causal, *see* causation, deterministic
 - explanatory, *see* explanation, deterministic
- endurantism 56
- epistemology 7, 27, 114, 141
 - modal 176
- eternalism 196
- events 4, 34, 41, 42n9, 43, 50–1, 66, 69, 71, 73, 76, 81, 83–7, 95, 145
 - contingent 44, 90, 205
 - fundamental 146
 - possible 42n9
 - quantum 36
 - uncaused 92, 96–7
- evolution
 - of biological kinds 28n12, 82, 133, 140
 - of the cosmos 61, 146
- existence
 - beginning of 73, 75, 86–7, 90
- contingent 33–4, 43, 50, 56–8, 62–3, 65, 67, 72, 94, 97, 102n7, 105, 116, 119
- heavyweight 138
- lightweight 138
- necessary 1–6 (*passim*), 25, 33–4, 39, 47–8, 57–8, 61, 66, 70, 77–8, 105–6, 115, 127–30, 133–8, 146–8, 150n1, 151–2, 162–4, 167–71, 173, 181–2, 190–2, 203–7
- operator 31
- predicate 14
- property of 58, 102
- as a second-order property, *see* properties, second-order
- existential inertia 76–8
- explanation
 - and contingency, *see* contingency, and explanation
 - causal 43–4, 56, 64, 70, 73, 86, 89n13, 106, 120–1, 145–6
 - circular 50, 59–62, 67, 92, 94, 96, 177, 178n7, 188
 - contingent 59, 61
 - deterministic 36
 - external 45, 52, 55, 89
 - factivity of 36, 198, 204
 - indeterministic 36, 41, 60, 62
 - inference to the best 38
 - internal 50–4, 68, 72, 92
 - Leibniz's general principle of 59, 62
 - metaphysical 37
 - necessary 60
 - of the existence of all contingent
 - concrete things 53, 177n5, 178
 - possible 87, 188, 198
 - probabilistic 178n7, 188
 - requirement of 44–5, 49–50, 63, 69
 - scientific 60, 206
 - and simplicity 38, 64, 67, 93, 186, 188
 - transcendent 48
 - ultimate 3–5, 48–9, 61–2, 65, 206
- facts 14, 34–6, 38, 45–6, 50–3, 58, 63–6, 69, 88, 92, 94, 102, 139, 177–8, 181, 183, 187–8, 191–3, 203–4, 206–7
 - Big 59–62
 - contingent 53, 58–65, 92
 - modal 12–13, 117–18
- fallacy of composition 53
- first cause 60–2, 156–7, 203–6

- fundamental reality, *see* reality, fundamental
- fusions, *see* mereology, mereological fusions
- God 5–6, 19, 31, 72n5, 126, 141, 150, 155, 157, 162, 167, 189–91, 200; *see also* cosmological argument; first cause; ontological argument; problem of evil; theism; theology
- Gödel, Kurt 150; *see also* numbers, Gödel; theorems, Gödel's First Incompleteness; theorems, Gödel's Second Incompleteness
- goodness 97
 - great 72n5
 - moral 151, 158–9
 - perfect 159, 167–70
- haecceities 22–9 (*passim*), 81–2
- Hawking, Stephen 3
- Hume, David 33, 47–9, 52–3, 56–7, 66, 92, 171, 173–4, 178
- Humean ontology, *see* ontology, Humean
- identity 30, 88, 154n2, 183n9
 - axiom for 183
 - of indiscernibles 23
 - necessity of 180
 - transworld 21, 23
- individuals 24, 28n12, 54–5, 116, 118, 130, 158–60, 174
 - big contingent 54
 - contingent 54–5
- infinite causal regress 34, 66, 92, 94, 192
- infinitesimals 41, 42n10
- infinity 41–3, 50, 52, 78, 112, 114, 121n7, 123, 129–30, 137, 142n15, 144–5, 147, 175, 184, 185n10, 203
 - actual 76
 - infinite disjunction 129
 - infinite number of concreta 185
 - of primes 11, 134, 148
- instantiation 24, 101, 134, 151–2, 164, 169–70, 173
 - universal 183, 201
- intuitions 9, 18, 22–3, 40, 52–3, 74–5, 91, 112–14, 118, 139, 145, 163–4, 170, 200
 - a priori 36, 54–5, 64, 73–4
 - direct 162
 - modal 168
 - subtractive 144
- Kant, Immanuel 1, 33, 47, 57–8, 66, 156
- Krauss, Lawrence 3–4
- laws of nature 15–16, 41, 147, 190
 - Mill-Ramsey-Lewis view of 191
- Leibniz, Gottfried 59, 62–3, 126, 150, 161–2, 164
- Lewis, David 19, 23–4, 190n16
- logic 2, 175, 184, 194
 - Axiom S4 of modal 15–31 (*passim*), 132–3
 - Axiom S5 of modal 11, 14, 16, 18–21, 27–31, 56n21, 79, 89, 102, 126, 147, 151, 167–8, 170–1, 176, 181–2, 192, 195, 199, 202–7
 - Axiom T of modal 15, 18
 - axioms of 15, 22, 23n7, 40, 57
 - Brouwer Axiom of 18, 24–9, 195
 - classical 154, 201
 - First Order 183
 - free 14, 26, 31, 58, 201
 - Leibniz's 161
 - modal 2, 14–15, 17–19, 21–2, 47–8, 58, 66
 - recursively axiomatizable 184
 - true 183–4
- mathematics 134, 175, 183, 192n18, 200–1, 204, 206–7
 - axioms of 40
 - mathematical induction 188
- mereology 90
 - mereological fusions 49, 53, 144–5
 - mereological nihilism 67
 - mereological sums 3
 - mereological universalism 195–6, 200, 203
- Merricks, Trenton 54, 145, 182
 - Objects and Persons* 54
- minds 139–41
 - concrete 146
 - contingent 133, 146
 - of God 126
 - immaterial 48
 - necessary 146
 - philosophy of 49

- Modal Argument from Beginnings
 (MAB) 69–92, 120–1
 modal continuity 75
 modal logic, *see* logic, modal
 modal realism 130
 modality 12, 14–16, 17n3, 18–19, 48,
 66, 72, 79, 111, 117, 183–4, 194
 causal powers account of 14, 17,
 19, 165
 de dicto 24
 de re 24
 epistemic 11, 15
 L-modality 13–14
 metaphysical 11, 13–17, 19
 narrowly logical 11, 13, 15–16
 Molinism 72n5, 168n7
 moral responsibility 156

 natural theology, *see* theology, natural
 “Necessary Being” survey 6–10, 79n10,
 91–2
 necessary concreta, *see* concreta,
 necessary
 necessity
 almost 42, 198–200
 broadly logical 12
 metaphysical 11, 14–17, 56–7, 74,
 105, 178, 182
 narrowly logical 12, 162n3
 nihilism 128
 mereological, *see* mereology,
 mereological nihilism
 metaphysical 4–5
 No Internal Explanation Reply 51–4
 (*passim*)
 nominalism 101, 115, 148, 151–2, 166
 nothing 3–5, 48, 135, 176–7
 numbers 2, 4, 47, 106, 115, 126, 134,
 136–7, 139, 147, 174
 Gödel 13

 objects 1n2, 14, 23–4, 27, 39, 41, 43–4,
 56, 76, 80, 87, 90, 110–13, 115,
 127–30, 139–40, 143, 147, 169, 180,
 183n9, 185n10, 189, 195–6, 200
 abstract, *see* abstracta
 composite 35, 54, 63
 concrete, *see* concreta
 contingent 49, 124, 202
 existing 14
 haecceities of, *see* haecceities
 macroscopic 40
 material 44
 mathematical 192n18, 200–1
 necessary 147
 non-existent 24, 26
 possible 41
 spatial 39, 44, 143, 189
 uncaused 41
 ontological argument 57–8, 151, 199
 Anselmian 150, 158
 basic 30, 89
 Gödelian 150, 169, 171
 modal (S5) 29–32, 82, 89, 171, 199
 ontology 2, 3n4, 4, 20, 64–5, 83, 85, 106,
 138, 145, 191, 193–4
 Aristotelian 138–42, 146, 148
 Armstrongian 144, 148
 easy 134–8
 folk 93
 Humean 165, 179
 Platonic 14, 141, 165–6, 171
 Quinean metaontology 27–8
 stuff 119n5
 Oppy, Graham 33, 58, 59n22, 63, 67n26,
 76n8, 97n4, 152, 169–72, 206

 paradox 156, 185
 heterologicality 165n4
 Knowability 197–8
 Russell’s 135–6
 of the stone 156
 particles 21, 28n12, 37, 48, 51–2, 55n19,
 61–2, 74, 98, 128, 176, 190
 alpha 83
 elementary 41
 eternal 43
 point 63
 simple 63
 subatomic 38
 parts 31, 49–51, 53–4, 60n23, 61–3, 67,
 73, 142–3, 193, 196, 202, 203
 contingent 193
 temporal 56, 185n10
 perdurantism 56
 perfection 151, 158, 164–5, 168n6, 199
 argument from 70, 150–72
 moral 156–7, 162
 perfect being 57, 150, 161, 204;
 see also God
 perfect cognizer 175
 phenomenological conservatism 40

- philosophy of mind, *see* minds,
 - philosophy of
- philosophy of time, *see* time,
 - philosophy of
- physics 3, 73, 204
- Plantinga, Alvin 12, 14, 16, 19, 24, 29,
 - 82, 132n7, 150, 168n7, 182
- Plato 139, 141
- Platonic Forms 141
- Platonic ontology, *see* ontology, Platonic
- plural quantification, *see* quantification,
 - plural
- pluralities 3, 17, 35, 49, 54–5, 77n9, 94,
 - 119, 193
 - of all things 65, 99
 - contingent 54–5
 - uncaused 65
 - unexplained 55
- possibility
 - broadly logical 72, 96, 113
 - and conceivability, *see* conceivability,
 - and possibility
 - logical 11, 101
 - metaphysical 4–5, 11, 16–18, 30,
 - 39–40, 47, 49, 56n21, 58, 61, 72–3,
 - 75n6, 76, 78–9, 81–2, 87, 90, 92, 96,
 - 110, 146, 175–6, 178, 196
 - narrowly (strictly) logical 16, 58
 - nomic 15–16
 - predicates 24–5, 34, 70, 101, 165–6
 - causation 31
 - existence 14, 58
 - presentism 45n11
 - Principle of Sufficient Reason 44, 198
 - Weak 206
 - Weak Weak 206
 - probability 41–3, 56–7, 78
 - epistemic 15
 - laws of 36, 61
 - zero 42n9
 - problem of evil 152, 166, 168, 172
 - modal 168
 - properties 2, 4, 23, 27–8, 49, 81, 86, 88,
 - 95, 106–7, 116, 118, 128, 130–4,
 - 141, 147, 151, 154n2, 156, 159–60,
 - 171, 186, 192n18, 199–201
 - abundant 27, 151, 165
 - atomic 161–2, 164–5, 168n6
 - basic 97–8, 100, 102–3, 105
 - exemplification of 85, 94–108
 - (*passim*)
 - of existence 24, 58, 102n7; *see also*
 - existence
 - fundamental 165
 - fundamental modal 14
 - haecceitistic, *see* haecceities
 - irreducible 165
 - modal 14, 45, 133, 182
 - natural 27–8, 97, 169–70
 - negative 152, 154–5, 157–9, 163
 - Platonic 165–6, 171
 - positive 150, 152, 155, 160–70
 - (*passim*)
 - of propositions 27; *see also*
 - propositions
 - second-order 24, 152
 - spatial 39
 - of truth, *see* truth
 - uniquelizing 166–7
 - propositions 2, 12n2, 14, 19, 21, 24,
 - 26–30, 36, 58, 112–16, 121–3, 127,
 - 131–2, 133n9, 139, 141–2, 147,
 - 169–70, 175, 182, 191, 198,
 - 200–1
 - contradictory 115–16
 - modal 14, 28, 131–2, 177
 - necessarily true 17, 27–8, 132–3,
 - 182–3, 192n18
 - negative 146
 - positive 88
 - possibly true 15–17, 20, 116, 123,
 - 147, 163
 - second-order 131
 - singular 25
 - tensed 88
 - provability 12–13, 183n9
 - in a formal (axiomatizable)
 - system 14, 16
 - quantification 14, 92–3, 99, 128, 187n13
 - domain of 127n2
 - over everything 93
 - existential 196
 - plural 34–5, 53, 94
 - second-order 24, 152
 - singular 35, 94
 - reality
 - Basic Laws of 16, 18–19, 74–5
 - concrete 3, 55, 78, 92, 193, 204
 - contingent 3–4, 33–4, 37, 48, 53, 55,
 - 62, 65–6, 78, 119–20

- reality (*cont.*)
 fundamental 4, 37, 49, 77–8,
 86–7, 146
 mind-independent 37
 necessary 3, 34, 47, 65, 78, 120, 192
 ultimate beginning of 105
 ultimate explanation of 4
 recursive specifiability 12–13
 relations 4, 97, 141
 accessibility 17–20, 27, 134
 binary 131
 casual 36, 66
 entailment 139
 equivalence 19–20
 membership 26, 35
 primitive 190
 reflexive 19–20
 symmetric 19–20
 transitive 19–20
 Rowe, William 33, 58, 59n22, 168
 Russell, Bertrand 136
- seemings 40
 self-contradiction 12–13, 56, 179–82
 semantics 28, 141, 179–82
 Lewis–Stalnaker 71
 modal 19
 possible worlds 17, 26
 semantic invariance 31
 two-dimensional 29–30, 82
 sets 2, 4, 13, 26, 35, 42, 135, 141, 196,
 200, 203
 of all sets 135
 classes 35
 empty 135–7, 195–6
 Russell 135–7
 simples 42, 54
 causeless 42n10
 contingent 41–2, 67, 87
 extended 54, 113
 spacetime 44, 66, 127, 143, 197, 200,
 203–4
 causally isolated 66
 states of affairs 19, 45, 71, 73–4, 79,
 81–2, 87–8, 95n2, 144–5, 169, 193
 the Big Contingent, *see* Big
 Contingent State
 concrete 145, 148
 contingent 144–5, 148
 necessarily obtaining 71–2
 negative 70, 144–6
 positive 31, 69–70, 72, 74–5, 78–9
 substances 2, 4, 66, 145–6
 concrete 148
 fundamental 56
 supernatural being 170, 172; *see also*
 God
 supreme being, *see* God
 Swinburne, Richard 5, 12n1, 22, 141,
 179–84
- telos* 204
 theism 5, 141, 155–6, 166, 168–72;
 see also cosmological argument;
 First Cause; God; ontological
 argument; problem of evil; theology
 Christian, *see* Christianity
 classical 166–7
 pantheism 155
 theology 2, 5–6, 42, 190n17
 natural 5
 theorems 15, 26–7, 44, 183–4, 201
 of arithmetic 132–3
 Gödel's First Incompleteness 12–13
 Gödel's Second
 Incompleteness 12–13, 183–4
 theory 12n2, 45, 137–8, 168, 193,
 196–7
 Big Bang, *see* Big Bang
 biological 38
 of causation 71, 145, 190–1
 cosmogonic 3–4
 cosmological 4
 costs of a 191–2, 194
 historical 23–5, 28
 metaphysical 90
 perdurantist, *see* perdurantism
 physical 3
 Rutherford's 83
 scientific 3
 theoretical virtue 64
 time 1, 23n8, 44, 55n19, 56, 61, 71, 78,
 84, 95–6, 99, 105, 146, 185n10, 197
 beginning of 95n2
 continuity of 51
 counterfactual arrow of, *see*
 counterfactuals, counterfactual
 arrow of time
 infinite 76
 philosophy of 67
 travel 107, 110
 timelessness 5

- truth 13, 27, 97, 127–8, 130–3, 139, 148, 165n4, 179
 - conditions 179–81
 - contingent 20, 184, 206
 - fundamental 197–8
 - necessary 14, 20, 49, 65–6, 74, 127, 130, 132n7, 141, 170, 179–84, 201
 - possible 28n12, 163
 - provable 13
 - truthbearers 127–8, 130, 132–4
 - truthmakers 181n8
 - at a world 27, 131–2
 - in a world 131–2
- Twin Earth 82, 115–16, 120n6
- uniformity
 - causal 98, 100, 191–2
 - modal 110–25 (*passim*), 185–9, 191–2
 - principles 111, 116, 124
- universe 3, 26, 37, 41, 43, 46n14, 48, 63, 73, 75, 85, 87, 129–30, 146, 155, 171, 189, 201, 203
- van Inwagen, Peter 33, 54, 58, 59n22, 134
- W principle, *see* causal principles, very weak
- Weak Argument from Beginnings (WAB) 100, 103, 104, 107–9, 122
- weak duplicates 82
- wholes 49–50, 52–3, 114, 196
 - contingent 193
 - organic 203
- Williamson, Timothy 1n2, 35n5, 183, 201
- worlds
 - actual (our) 12, 16, 19–22, 24, 26–7, 29, 43, 87–8, 120n6, 130, 134, 137, 140, 142, 144, 148, 167–8
 - as collections of propositions 26
 - empty 4, 106, 174–6, 178
 - impossible 11, 19–20
 - as maximal spatiotemporal connected concreta 19
 - as maximal states of affairs 19
 - as maximally specific consistent ideas in the mind of God 19
 - as maximal states of affairs 19
 - possible 5, 11, 16–31 (*passim*), 39–40, 42, 49, 55n19, 56n21, 66, 72n5, 73, 77, 80, 88, 90, 106, 119–20, 121n7, 129–37, 140, 142–5, 147–8, 153, 163, 167, 174–6, 177n5, 178n6, 190n16, 195–6, 198–200, 203, 206